# APPENDIX B AGENCY CONSULTATION





# Department of Energy

Golden Field Office 1617 Cole Boulevard Golden, Colorado 80401-3393

November 24, 2008

U.S. Department of Army Corps of Engineers, Omaha District 9307 S. Wadsworth Blvd Littleton, Colorado 80128-6901

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leton, Colorado 80128-6901

Attention: Mr. Terry McKee

Subject: Department of Energy's New Southern Access to the National Renewable

**Energy Laboratory South Table Mountain Site** 

Pursuant to your recent discussions with Dan Lowery of Battelle Memorial Institute, the purpose of this letter is to provide your agency with additional information regarding the subject project, current vegetation conditions of the Lena Gulch, and proposed design measures that would be incorporated into a roadway as it crosses Lena Gulch. Please accept this letter as a formal request to provide our agency with the proper permit requirements and guidance pursuant to compliance with Section 404 of the Clean Water Act.

# Background

As you may be aware, the Department of Energy (DOE) is involved in a multiyear buildout of the National Renewable Energy Laboratory's (NREL) South Table Mountain (STM) Site located in Golden, CO. Traffic studies recently commissioned by DOE to assess the consequences of staff growth at NREL resulting from the buildout have indicated that future traffic congestion at the intersections of Denver West Parkway/Denver West Marriott Boulevard could reach unacceptable levels without an additional entrance. As a result, DOE is considering options for a new southern entrance that would connect the STM site to South Golden Road. Several of the available alternatives for this new access would cross Lena Gulch, a perennial stream beginning in the foothills to the west of the STM site and culminating several miles to the east into Clear Creek.

This proposed action along with other site infrastructure upgrades, a new laboratory building, and an expansion to the Visitor's Center are being evaluated under DOE's NEPA regulations in a Supplemental Environmental Assessment (EA). A more detailed description of the other proposed actions being assessed can be found in the attached Notice of Public Scoping for the Preparation of an Environmental Assessment Supplement for Proposed Site Development Projects at NREL. At this time DOE is evaluating its alternatives for a southern entrance road and does not yet have a preferred alternative. Through this EA process, DOE plans to select a corridor within in which



more detailed route selection and design work would be performed before any construction would begin.

# **Proposed Action Summary**

As shown in the attached Figure, four Corridors (A, B, C and D) are being considered at this time. As part of the roadway entrance design, all alternatives would require crossing Lena Gulch and, therefore, may be the subject of potential permit requirements under the Nationwide Permit Program. Alternative A would require a new bridge. Alternatives B and D could use an existing bridge on Kilmer Street, possibly with some upgrades, or a new bridge may be needed. Alternative C would utilize the existing bridge on Isabell Street.

# **Existing Conditions**

Based on recent field visits conducted in early-November 2008 at proposed roadway crossings of Lena Gulch, a number of riparian areas were identified within or adjacent to onsite drainages. These areas exhibited a number of wetland criteria based on U.S. Fish and Wildlife Service guidelines for delineation of wetlands. These areas could be considered as jurisdictional wetlands based on onsite vegetation and soil conditions and could fall under the jurisdiction of the U.S. Army Corps of Engineers Section 404 regulations.

#### **Proposed Design Measures**

As envisioned, the bridge would be designed to eliminate any need of permanent components (e.g. abutments, truss, supporting materials and decking) within Lena Gulch, thereby reducing any potential impacts to biological or hydrologic resources. Moreover, the construction of the bridge would not require the need to be in the active portion or riparian portions of the gulch.

Based on the low-profile design of the bridge, as well as the use of low-intensity equipment to construct the bridge, disturbance to the Lena Gulch is not expected. The following main activities would be conducted prior to construction activities:

- Survey project site for bridge length and placement
- Test on-site soils for structural compatibility
- Design final bridge shop drawings for agency approval
- Delineate sensitive habitat for avoidance
- Fabricate bridge components off-site
- Establish staging area(s) for approval by agency

The following main activities would be conducted during construction:

- Excavate, by hand, abutments and ready site with pea-gravel
- Place abutments and set on pea-grave for leveling

- Place bridge trusses and ancillary components to project site for placement
- Construct bridge deck in-place
- Construct bridge rail in-place

The following main activities would be conducted after construction:

- Consult with agency once bridge has been set in place
- Restore and re-vegetate disturbed areas including abutments, slab foundations and pilings

# Construction Schedule

The total construction time for the entire bridge design and fabrication and installation is expected to occur within 30 to 45 days.

Transport activities	7 days
Excavation activities to ready site for bridge	7 days
Bridge construction activities	10 days
Project restoration activities	5 days

To summarize, by way of this letter DOE is requesting that the Corps provide our agency with the proper permit requirements and guidance pursuant to compliance with Section 404 of the Clean Water Act. Thank you for your time and cooperation in this matter and feel free to contact Steve Blazek at 303-275-4723 should you have any questions or should you require additional information.

Sincerely,

Gregory D. Collette Acting Assistant Manager Laboratory Operations

Enclosures



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
DENVER REGULATORY OFFICE, 9307 S. Wadsworth Boulevard
LITTLETON, COLORADO 80128-6901

December 2, 2008

Mr. Gregory Collette Department of Energy Golden Field Office 1617 Cole Boulevard Golden, CO 80401-3393

Department of Energy's New Southern Access to the National Renewable Energy Laboratory South Table Mountain Site, Lena Gulch Corps File No. NWO-2008-2996-DEN

Dear Mr. Collette:

Reference is made to the above-referenced project located in the NE ¼ of Section 1, T4S, R70W, Jefferson County, Colorado. This project has been reviewed by Mr. Terry McKee of my office in accordance with Section 404 of the Clean Water Act under which the U.S. Army Corps of Engineers regulates the discharge of dredged and fill material, and any excavation activity associated with a dredge and fill project in waters of the United States.

Based on the information provided, a Department of the Army (DA) Permit will not be required for work at this site. Although a DA Permit will not be required for the project, this does not eliminate the requirement that other applicable federal, state, and local permits be obtained as needed. If, however, any work associated with this project requires the placement of dredged or fill material, and any excavation associated with a dredged or fill project, either temporary or permanent, in an aquatic site, which may include ephemeral and perennial streams, wetlands, lakes, ponds, drainage ditches and irrigation ditches, this office should be notified by a proponent of the project for Department of the Army permits, changes in permit requirements or jurisdictional determinations pursuant to Section 404 of the Clean Water Act.

Work in an aquatic site should be identified by the proponent of the project and be shown on a map identifying the Quarter Section, Township, Range and County and Latitude and Longitude, Decimal Degrees (datum NAD 83) and the dimensions of work in each aquatic site. Any loss of an aquatic site may require mitigation. Mitigation requirements will be determined during the Department of the Army permitting review.

If there are any questions call Mr. Terry McKee of my office at (303) 979-4120 and reference Corps File No. NWO-2008-2996-DEN.

Sincerely

Timothy T. Care Chief, Denver Regulatory Offi

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53787 AM

# **Department of Energy**

Golden Field Office 1617 Cole Boulevard Golden, Colorado 80401-3393

November 24, 2008

Mr. Edward Nichols State Historic Preservation Officer Colorado Historical Society 1300 Broadway Denver, Co 80203 (303) 866-3355



Dear Mr. Nichols:

SUBJECT: U.S. DEPARTMENT OF ENERGY NEW SOUTHERN ENETRANCE TO THE NATIONAL RENEWABLE ENERGY LABORATORY'S SOUTH TABLE MOUNTAIN SITE (DOE/EA1440S-II)

The purpose of this letter is to notify your agency that the U.S. Department of Energy (DOE) is evaluating alternative corridors to provide a new southern access road into the South Table Mountain Site (STM) site. Further, DOE solicits your review and comments on this proposed action as well as concurrence on the historic resources which might be affected by roadway construction of these proposed corridors. Three of the four corridors (A, B, and D) (Figure Attached) would traverse the Camp George West Historic District located in Jefferson County, Section 36, Township 3 South, Range 70 West, and Section 1, Township 4 South, Range 70 West. Corridor C would connect the STM site with the current Isabell Street and thus have no potential to affect historic resources within the District.

DOE will use your information and consider any other factors in its evaluation of corridor options before selecting a single corridor for more detail roadway route selection, design, and impact mitigation if needed. DOE intends to work closely with your office during and after our corridor selection process in the determination of affects, if any, which may result from this action. As you can see from our figure, the corridors as defined are sufficiently wide to avoid historic resources, with the exception of corridor D which follows Kilmer Street with numerous resources adjacent to the street. The other resources that might prove difficult to avoid for all alternatives could be the six-hundred and five-hundred-yard firing lines (FR12) due to their length and locations, but a determination of effect will have to wait for more detailed route selection. Please also note that, at this time, we believe the use of Kilmer Street under corridor D would not require any widening of the current roadway and thus the resources along this route would not be disturbed. We are working with the appropriate roadway agencies to confirm the adequacy of the existing roadway.



# Background

As you may be aware, the Department of Energy (DOE) is involved in a multiyear buildout of the National Renewable Energy Laboratory's (NREL) South Table Mountain Site located in Golden, CO. Traffic studies recently commissioned by DOE to assess the consequences of staff growth at NREL resulting from the buildout have indicated that future traffic congestion at the intersections of Denver West Parkway/Denver West Marriott Boulevard could reach unacceptable levels if an additional entrance to the site was not added. As a result, DOE is considering its options for a new southern entrance that would connect the STM site to South Golden Road.

This proposed action along with other site infrastructure upgrades, a new laboratory building, and an expansion to the Visitor's Center are being evaluated under DOE's NEPA regulations in a Supplemental Environmental Assessment (EA). A more detailed description of the other proposed actions being assessed can be found in the attached Notice of Public Scoping for the Preparation of an Environmental Assessment Supplement for Proposed Site Development Projects at NREL. At this time DOE is evaluating alternatives for a southern entrance road and does not yet have a preferred alternative. Through this EA process, DOE plans to select a corridor within in which more detailed route selection and design work would be performed, and concurrence on a determination of effect (if applicable) would be solicited before any construction would begin.

# Resources Potentially Affected

DOE has reviewed the information available from the National Register of Historic Places on the Camp George West Historic District and has determined that there are thirteen listed structures that contributed to the District's designation and two non-listed, noncontributing resources occur in or near the access corridors currently under review by DOE. Resources and the corridor(s) in which they occur are identified in the table below.

Resource Number	Name	Present	within South	ern Access C	Corridor
		A	В	C	D
Contributing Resources					
12	Mess Hall	No	No	No	Yes
26	Mess Hall	No	No	No	Yes
29	Mess Hall	No	No	No	Yes
33	Small Arms/Ammunition Storage	No	No	No	Yes
45	Headquarters	No	No	No	Yes
48	Recreational Hall	No	Yes	No	Yes

49	Swimming Pool	No	Yes	No	Yes
50	Pedestrian	No	No	No	Yes
	Underpass				
83	Guard House	No	No	No	Yes
84	Pump House	No	Yes	No	Yes
92	Bridge	No	Yes	No	Yes
113	Bridge	No	Yes	No	Yes
FR 12	Firing Lines	Yes	Yes	No	Yes
Non-					
Contributing					
Resources					
(A)	Warehouse	No	No	No	Yes
104	Golden Clubhouse	Yes	Yes	No	Yes

<sup>(</sup>A) The number designation on this warehouse cannot be determined from the copies of the designation report in our files. This metal roofed and sided warehouse lies on Kilmer Street just west of the gateway arch to the Pleasantview Community Park.

If your records indicate additional resources within these corridors that are not listed above please include the identification of any such resources in your response to this letter.

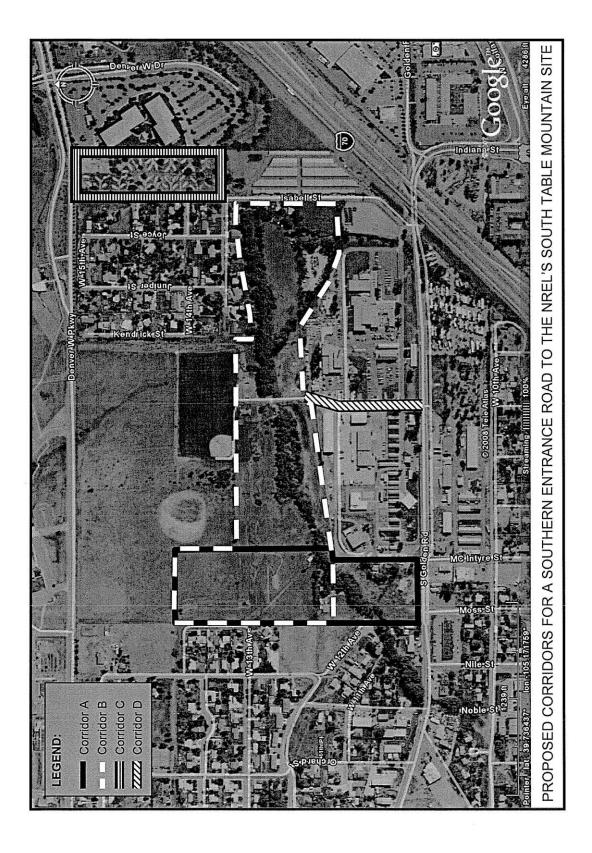
DOE appreciates your participation in this process of resource identification and will work closely with you and your staff as we comply with Section 106 of the National Historic Preservation Act and with the Advisory Council on Historic Preservation regulations.

We look forward to further consultations on this project. Please contact Steve Blazek at (303) 275-4723 for additional information.

Sincerely,

Gregory D. Collette Acting Assistant Manager Laboratory Operations

Enclosures





# OFFICE of ARCHAEOLOGY and HISTORIC PRESERVATION

December 8, 2008

Gregory D. Collette Acting Assistant Manager Laboratory Operations Department of Energy Golden Field Office 1617 Cole Boulevard Golden, CO 80401-3393

Re: New Southern Entrance to the National Renewable Energy Laboratory South Table Mountain Site (DOE/EA 14402-II) (CHS #53787)

Dear Mr. Collette:

Thank you for your correspondence dated November 24, 2008 and received by our office on December 2, 2008 regarding the consultation of the above-mentioned project under Section 106 of the National Historic Preservation Act (Section 106).

After review of the provided information, we are not able to complete our review of your project under Section 106. In order to review this project under Section 106, we need to consult with your office regarding the Area of Potential Effects (APE) and identification of other consulting parties, as stipulated in 36 CFR 800.4(a). Once we have an appropriate APE boundary and consulting parties notified of the project, we can consult on the identification of historic properties and assessment of adverse effect. We recommend contacting our office regarding the APE and identification of other consulting parties.

Please note that our compliance letter does not end the 30-day review period provided to other consulting parties. If we may be of further assistance, please contact Amy Pallante, our Section 106 Compliance Manager, at (303) 866-4678.

Sincerely,

Edward C. Nichols

State Historic Preservation Officer

cc: Steve Blazek/Department of Energy

COLORADO HISTORICAL SOCIETY

1300 Broadway Denver Colorado 80203 Tel 303/866-3395 Fax 303/866-2711 www.coloradohistory-oahp.org



#### DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS, OMAHA DISTRICT
DENVER REGULATORY OFFICE, 9307 SOUTH WADSWORTH BOULEVARD
LITTLETON, COLORADO 80128-6901

April 27, 2009

Ms. Genny Braus Senior Environmental Specialist NREL - Environmental Health and Safety 1617 Cole Boulevard, Mail Stop 730 Golden, CO 80401

RE: National Renewable Energy Laboratory, Drainage Review Corps File No. NWO-2009-1014-DEN

Dear Ms. Braus:

Reference is made to your April 24, 2009 site visit with Mr. Terry McKee of my office concerning the above-mentioned project located in the S ½ of Section 36, T3S, R70W, Jefferson County, Colorado. During the site visit the below drainages were examined and identified as upland swales vegetated with upland vegetation:

- 1. JeffCo Easement Drainage
- 2. East Drainage
- 3. Middle Drainage
- 4. Middle West Drainage
- 5. West Drainage
- 6. Road Side Drainages and Trickle Channel Drainages

An approved jurisdictional determination (JD) has been completed for the above mentioned upland swales. The JD's for these swales are attached to this letter. If you are not in agreement with the JD decision, you may request an administrative appeal under regulation 33 CFR 331, by using the attached Appeal Form and Administrative Appeal Process form. The request for appeal must be received within 60 days from the date of this letter. If you would like more information on the jurisdictional appeal process, contact this office. It is not necessary to submit a Request for Appeal if you do not object to the JD.

The above upland swales have been reviewed in accordance with Section 404 of the Clean Water Act under which the U.S. Army Corps of Engineers regulates the discharge of dredged and fill material, and any excavation activity associated with a dredge and fill project in waters of the United States. A Department of the Army (DA) Permit will not be required for work at in these upland swales. Although a DA Permit will not be required for work in these swales, this does not eliminate the requirement that other applicable federal, state, and local permits be obtained as needed.

This JD is valid for a period of five years from the date of this letter, unless new information warrants revisions of the JDs before the expiration date, or unless the Corps has identified, after a possible public notice and comment, that specific geographic areas with rapidly changing environmental conditions merit re-verification on a more frequent basis.

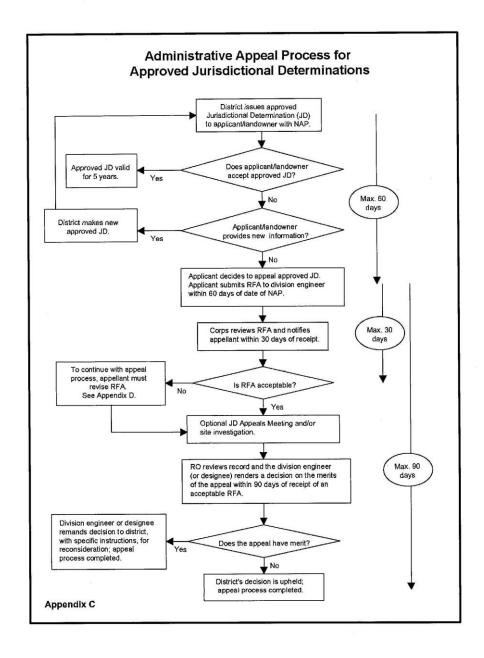
The Omaha District, Regulatory Branch is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to complete our Customer Service Survey found on our website at <a href="http://per2.nwp.usace.army.mil/survey.html">http://per2.nwp.usace.army.mil/survey.html</a>. If you do not have Internet access, you may call and request a paper copy of the survey that you can complete and return to us by mail or fax. (Completing the survey is a voluntary action)

If there are any questions call Mr. Terry McKee at (303) 979-4120 and reference Corps No. NWO-2009-1014-DEN.

Sincerely,

Timothy T. Carey
Chief, Denver Regulatory Office

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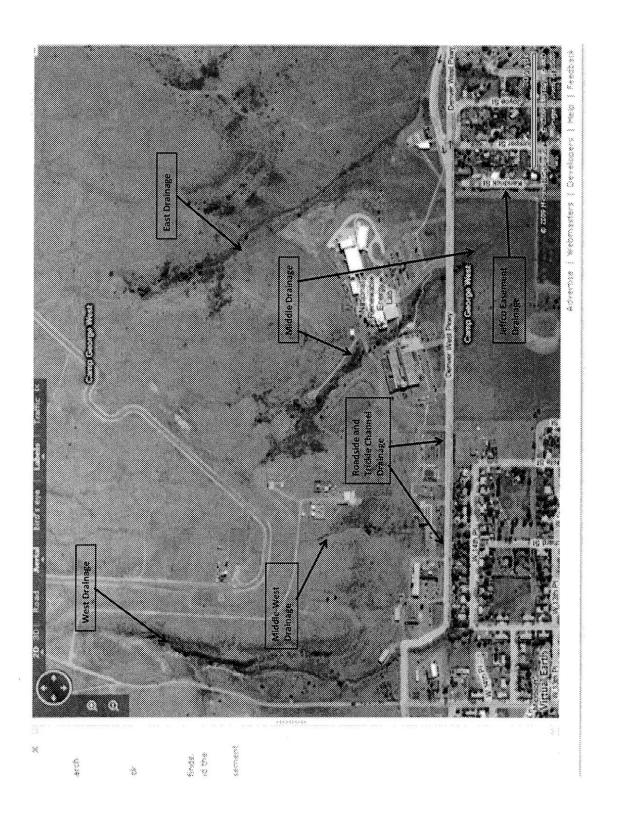
NOTIFICATION OF ADMINIS	TRATIVE APPEAL OPTIONS AND PI EQUEST FOR APPEAL	ROCESS AND
Applicant:	File Number:	Date:
Attached is:		See Section below
INITIAL PROFFERED PERMIT (S	Standard Permit or Letter of permission)	A
PROFFERED PERMIT (Standard P	ermit or Letter of permission)	В
PERMIT DENIAL		C
APPROVED JURISDICTIONAL D	ETERMINATION	D
PRELIMINARY JURISDICTIONA		Е

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <a href="http://usace.army.mil/inet/functions/cw/ceewo/reg">http://usace.army.mil/inet/functions/cw/ceewo/reg</a> or Corps regulations at 33 CFR Part 331.

- A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.
- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final
  authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your
  signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights
  to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.
- B: PROFFERED PERMIT: You may accept or appeal the permit
- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final
  authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your
  signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights
  to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you
  may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this
  form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the
  date of this notice.
- C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.
- D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.
- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the
  date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative
  Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received
  by the division engineer within 60 days of the date of this notice.
- E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

# SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.) ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record. POINT OF CONTACT FOR QUESTIONS OR INFORMATION: If you have questions regarding this decision and/or the appeal If you only have questions regarding the appeal process you may process you may contact: also contact: Timothy T. Carey US Army Corps of Engineers, Northwestern Division Chief, Denver Regulatory Office Attn: David Gesl, Appeal Review Officer 9307 South Wadsworth Boulevard 1125 NW Couch St. Littleton, CO 80128 Portland, OR 97209-4141 (303) 979-4120 Telephone (503) 808-3825 RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day

notice of any site investigation, and will have the opportunity to participate in all site investigations.



	APPROVED JURISDICTIONAL DETERMINATION FORM U.S. Army Corps of Engineers
Thi	s form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.
SEG	CTION I: BACKGROUND INFORMATION REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): April 27, 2009
B.	DISTRICT OFFICE, FILE NAME, AND NUMBER: Denver Regulatory Office, National Renewable Energy Laboratory, NWO-2009-1014-DEN
C.	State: CO County/parish/borough: Jefferson City: Golden Center coordinates of site (lat/long in degree decimal format): Lat. 39.74131 N; Long104.17376 W Universal Transverse Mercator:
	Name of nearest waterbody: Lena Gulch Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: NA Name of watershed or Hydrologic Unit Code (HUC): 10190002  Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.  Check if other sites (e.g., offsite mitigation sites, disposal sites, etc) are associated with this action and are recorded on a different JD form.
D.	REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):  Office (Desk) Determination. Date: April 24, 2009  Field Determination. Date(s): April 24, 2009
SE A.	CTION II: SUMMARY OF FINDINGS RHA SECTION 10 DETERMINATION OF JURISDICTION.
	ere Are no "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the riew area. [Required]  Waters subject to the ebb and flow of the tide.  Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain:
В.	CWA SECTION 404 DETERMINATION OF JURISDICTION.
Th	ere Are no "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]
	a. Indicate presence of waters of U.S. in review area (check all that apply):  TNWs, including territorial seas Wetlands adjacent to TNWs Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs Non-RPWs that flow directly or indirectly into TNWs Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
	Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs Impoundments of jurisdictional waters Isolated (interstate or intrastate) waters, including isolated wetlands
	b. Identify (estimate) size of waters of the U.S. in the review area:  Non-wetland waters: linear feet: width (ft) and/or acres.  Wetlands: acres.
	c. Limits (boundaries) of jurisdiction based on: Established by OHWM.  Elevation of established OHWM (if known):
	2. Non-regulated waters/wetlands (check if applicable): <sup>3</sup> ■ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: Upland swale vegetated with upland vegetation
2 ]	Boxes checked below shall be supported by completing the appropriate sections in Section III below.  For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" .g., typically 3 months).
3	Supporting documentation is presented in Section III.F.

F. NO	WINNERSON OF THE PROPERTY OF T
1201	DN-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):  If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers
23	Wetland Delineation Manual and/or appropriate Regional Supplements.
	Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
	Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
	Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:
	Other: (explain, if not covered above): No OHWM physical indicators
Pro	ovide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR
fac	tors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional
jud	lgment (check all that apply):  Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
	Lakes/ponds: acres.
	Other non-wetland waters: acres. List type of aquatic resource:
	Wetlands: acres.
Pro	ovide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such
a fi	inding is required for jurisdiction (check all that apply):  Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
	Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).  Lakes/ponds: acres.
	Other non-wetland waters: acres. List type of aquatic resource:
	Wetlands: acres.
SECTION	ON IV: DATA SOURCES.
A SUP	PPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked
and	d requested, appropriately reference sources below):
	Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: NREL - Environmental and Safety
	Office concurs with data sheets/delineation report.
	Office does not concur with data sheets/delineation report.  Data sheets prepared by the Corps:
	Data sheets prepared by the Corps: Corps navigable waters' study:
	Data sheets prepared by the Corps: Corps navigable waters' study: U.S. Geological Survey Hydrologic Atlas:
	Data sheets prepared by the Corps: Corps navigable waters' study: U.S. Geological Survey Hydrologic Atlas:  ☐ USGS NHD data.
	Data sheets prepared by the Corps: Corps navigable waters' study: U.S. Geological Survey Hydrologic Atlas:  USGS NHD data.  USGS 8 and 12 digit HUC maps. U.S. Geological Survey map(s). Cite scale & quad name: 1:24000. Morrison
	Data sheets prepared by the Corps: Corps navigable waters' study: U.S. Geological Survey Hydrologic Atlas:  USGS NHD data.  USGS 8 and 12 digit HUC maps. U.S. Geological Survey map(s). Cite scale & quad name: 1:24000. Morrison USDA Natural Resources Conservation Service Soil Survey. Citation:
	Data sheets prepared by the Corps: Corps navigable waters' study: U.S. Geological Survey Hydrologic Atlas:  ☐ USGS NHD data.  ☐ USGS 8 and 12 digit HUC maps. U.S. Geological Survey map(s). Cite scale & quad name: 1:24000. Morrison USDA Natural Resources Conservation Service Soil Survey. Citation: National wetlands inventory map(s). Cite name:
	Data sheets prepared by the Corps: Corps navigable waters' study: U.S. Geological Survey Hydrologic Atlas: USGS NHD data. USGS 8 and 12 digit HUC maps. U.S. Geological Survey map(s). Cite scale & quad name: 1:24000. Morrison USDA Natural Resources Conservation Service Soil Survey. Citation: National wetlands inventory map(s). Cite name: State/Local wetland inventory map(s):
	Data sheets prepared by the Corps: Corps navigable waters' study: U.S. Geological Survey Hydrologic Atlas:  USGS NHD data.  USGS 8 and 12 digit HUC maps. U.S. Geological Survey map(s). Cite scale & quad name: 1:24000. Morrison USDA Natural Resources Conservation Service Soil Survey. Citation: National wetlands inventory map(s). Cite name: State/Local wetland inventory map(s): FEMA/FIRM maps:
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# APPROVED JURISDICTIONAL DETERMINATION FORM U.S. Army Corps of Engineers This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook. SECTION I: BACKGROUND INFORMATION A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): April 27, 2009 B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Denver Regulatory Office, National Renewable Energy Laboratory, NWO-2009-1014-DEN C. PROJECT LOCATION AND BACKGROUND INFORMATION: JeffCo Easement Drainage County/parish/borough: Jefferson City: Golden Center coordinates of site (lat/long in degree decimal format): Lat. 39.74131 N; Long. -104.17376 W Universal Transverse Mercator: Name of nearest waterbody: Lena Gulch Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: NA Name of watershed or Hydrologic Unit Code (HUC): 10190002 Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request. Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form. D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY): Office (Desk) Determination. Date: April 24, 2009 Field Determination. Date(s): April 24, 2009 SECTION II: SUMMARY OF FINDINGS A. RHA SECTION 10 DETERMINATION OF JURISDICTION. There Are no "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required] Waters subject to the ebb and flow of the tide. Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: B. CWA SECTION 404 DETERMINATION OF JURISDICTION. There Are no "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required] 1. Waters of the U.S. a. Indicate presence of waters of U.S. in review area (check all that apply): 1 TNWs, including territorial seas Wetlands adjacent to TNWs Relatively permanent waters2 (RPWs) that flow directly or indirectly into TNWs Non-RPWs that flow directly or indirectly into TNWs Wetlands directly abutting RPWs that flow directly or indirectly into TNWs Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs Impoundments of jurisdictional waters Isolated (interstate or intrastate) waters, including isolated wetlands b. Identify (estimate) size of waters of the U.S. in the review area: Non-wetland waters: linear feet: width (ft) and/or Wetlands: acres.

c. Limits (boundaries) of jurisdiction based on: Established by OHWM.

Explain: Upland swale vegetated with upland vegetation

Elevation of established OHWM (if known):

Non-regulated waters/wetlands (check if applicable):3

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.

Supporting documentation is presented in Section III.F.

Boxes checked below shall be supported by completing the appropriate sections in Section III below.

<sup>&</sup>lt;sup>2</sup> For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

F.	NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):  If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
	Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
	Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the
	"Migratory Bird Rule" (MBR).
	Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:
	Other: (explain, if not covered above): No OHWM physical indicators
	Provide acreage estimates for non-jurisdictional waters in the review area, where the <u>sole</u> potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
	Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
	Lakes/ponds: acres.
	Other non-wetland waters: acres. List type of aquatic resource: .  Wetlands: acres.
	wenalius. acres.
	Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such
	a finding is required for jurisdiction (check all that apply):  Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
	Lakes/ponds: acres.
	Other non-wetland waters: acres. List type of aquatic resource:
	Other non-wetland waters:  Wetlands: acres. List type of aquatic resource:  CTION IV: DATA SOURCES.
	Wetlands: acres.  CTION IV: DATA SOURCES.
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-	7	APPROVED JURISDICTIONAL DETERMINATION FORM U.S. Army Corps of Engineers
	This	s form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.
	SEC A.	CTION I: BACKGROUND INFORMATION REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): April 27, 2009
	B.	DISTRICT OFFICE, FILE NAME, AND NUMBER: Denver Regulatory Office, National Renewable Energy Laboratory, NWO-2009-1014-DEN
	C.	PROJECT LOCATION AND BACKGROUND INFORMATION: East Drainage State: CO County/parish/borough: Jefferson City: Golden Center coordinates of site (lat/long in degree decimal format): Lat. 39.74131 N; Long104.17376 W Universal Transverse Mercator:
		Name of nearest waterbody: Lena Gulch Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: NA Name of watershed or Hydrologic Unit Code (HUC): 10190002  Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.  Check if other sites (e.g., offsite mitigation sites, disposal sites, etc) are associated with this action and are recorded on a different JD form.
	D.	REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):  Office (Desk) Determination. Date: April 24, 2009  Field Determination. Date(s): April 24, 2009
		CTION II: SUMMARY OF FINDINGS RHA SECTION 10 DETERMINATION OF JURISDICTION.
		ere Are no "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the iew area. [Required]  Waters subject to the ebb and flow of the tide.  Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain:
	B.	CWA SECTION 404 DETERMINATION OF JURISDICTION.
	The	ere Are no "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]
		1. Waters of the U.S.  a. Indicate presence of waters of U.S. in review area (check all that apply):  TNWs, including territorial seas  Wetlands adjacent to TNWs
		Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs  Non-RPWs that flow directly or indirectly into TNWs  Wetlands directly abutting RPWs that flow directly or indirectly into TNWs  Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs  Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
		Impoundments of jurisdictional waters Isolated (interstate or intrastate) waters, including isolated wetlands
		b. Identify (estimate) size of waters of the U.S. in the review area:  Non-wetland waters: linear feet: width (ft) and/or acres.  Wetlands: acres.
		c. Limits (boundaries) of jurisdiction based on: Established by OHWM.  Elevation of established OHWM (if known):
		<ol> <li>Non-regulated waters/wetlands (check if applicable):<sup>3</sup></li> <li>Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: Upland swale vegetated with upland vegetation</li> </ol>

<sup>&</sup>lt;sup>1</sup> Boxes checked below shall be supported by completing the appropriate sections in Section III below.
<sup>2</sup> For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
<sup>3</sup> Supporting documentation is presented in Section III.F.

F. NO	
$\boxtimes$	DN-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):  If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.  Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.  Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).  Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:  Other: (explain, if not covered above): No OHWM physical indicators.
fac	ovide acreage estimates for non-jurisdictional waters in the review area, where the <u>sole</u> potential basis of jurisdiction is the MBR tors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional gment (check all that apply):  Non-wetland waters (i.e., rivers, streams): linear feet width (ft).  Lakes/ponds: acres.  Other non-wetland waters: acres. List type of aquatic resource:  Wetlands: acres.
Pro a fi	ovide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such anding is required for jurisdiction (check all that apply):  Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).  Lakes/ponds: acres.  Other non-wetland waters: acres. List type of aquatic resource:  Wetlands: acres.
SECTION	ON IV: DATA SOURCES.
	Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: NREL – Environmental and Safety Data sheets prepared/submitted by or on behalf of the applicant/consultant.  Office concurs with data sheets/delineation report.  Office does not concur with data sheets/delineation report.  Data sheets prepared by the Corps: Corps navigable waters' study: U.S. Geological Survey Hydrologic Atlas:  USGS NHD data.  USGS NHD data.  USGS 8 and 12 digit HUC maps. U.S. Geological Survey map(s). Cite scale & quad name: 1:24000, Morrison USDA Natural Resources Conservation Service Soil Survey. Citation: National wetlands inventory map(s). Cite name: State/Local wetland inventory map(s): FEMA/FIRM maps: 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929) Photographs: Aerial (Name & Date): or Other (Name & Date): Previous determination(s). File no. and date of response letter: Applicable/supporting case law: Rapanos and Carabell cases. Applicable/supporting scientific literature: Other information (please specify):
3. ADD	DITIONAL COMMENTS TO SUPPORT JD:

# APPROVED JURISDICTIONAL DETERMINATION FORM U.S. Army Corps of Engineers This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook. SECTION I: BACKGROUND INFORMATION A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): April 27, 2009 B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Denver Regulatory Office, National Renewable Energy Laboratory, NWO-2009-1014-DEN C. PROJECT LOCATION AND BACKGROUND INFORMATION: Middle Drainage State: CO County/parish/borough: Jefferson City: Golden Center coordinates of site (lat/long in degree decimal format): Lat. 39.74131 N; Long. -104.17376 W Universal Transverse Mercator: Name of nearest waterbody: Lena Gulch Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: NA Name of watershed or Hydrologic Unit Code (HUC): 10190002 Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request. Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form. D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY): Office (Desk) Determination. Date: April 24, 2009 Field Determination. Date(s): April 24, 2009 SECTION II: SUMMARY OF FINDINGS A. RHA SECTION 10 DETERMINATION OF JURISDICTION. There Are no "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required] Waters subject to the ebb and flow of the tide. Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: B. CWA SECTION 404 DETERMINATION OF JURISDICTION. There Are no "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required] 1. Waters of the U.S. a. Indicate presence of waters of U.S. in review area (check all that apply): 1 TNWs, including territorial seas Wetlands adjacent to TNWs Relatively permanent waters2 (RPWs) that flow directly or indirectly into TNWs Non-RPWs that flow directly or indirectly into TNWs Wetlands directly abutting RPWs that flow directly or indirectly into TNWs Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs Impoundments of jurisdictional waters Isolated (interstate or intrastate) waters, including isolated wetlands b. Identify (estimate) size of waters of the U.S. in the review area: Non-wetland waters: linear feet: width (ft) and/or Wetlands: acres. c. Limits (boundaries) of jurisdiction based on: Established by OHWM. Elevation of established OHWM (if known): Non-regulated waters/wetlands (check if applicable):3 Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: Upland swale vegetated with upland vegetation Boxes checked below shall be supported by completing the appropriate sections in Section III below. <sup>2</sup> For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally"

(e.g., typically 3 months).

Supporting documentation is presented in Section III.F.

SE	CTION III: CWA ANALYSIS
F.	NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):  If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.  Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.  Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).  Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:  Other: (explain, if not covered above): No OHWM physical indicators
	Provide acreage estimates for non-jurisdictional waters in the review area, where the <u>sole</u> potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best profession
	judgment (check all that apply):  Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
	☐ Lakes/ponds: acres. ☐ Other non-wetland waters: acres. List type of aquatic resource: ☐ Wetlands: acres.
	Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where a finding is required for jurisdiction (check all that apply):
	Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).  Lakes/ponds: acres.
	Other non-wetland waters: acres. List type of aquatic resource:
	Wetlands: acres.
	Wetlands: acres.
<u>SE</u>	Wetlands: acres.
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Supporting documentation is presented in Section III.F.

Boxes checked below shall be supported by completing the appropriate sections in Section III below.

<sup>&</sup>lt;sup>2</sup> For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

SEC	CTION III: CWA ANALYSIS
F.	NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):  If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
	Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.  Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
	Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:  Other: (explain, if not covered above): No OHWM physical indicators  ■ Other: (explain, if not covered above): No OHWM physical indicators
	Provide acreage estimates for non-jurisdictional waters in the review area, where the <u>sole</u> potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
	Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
	Lakes/ponds: acres.  Other non-wetland waters: acres. List type of aquatic resource:  Wetlands: acres.
	Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
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0-	CONTROL IV. DATA COURCES
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A.	SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
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	Corps navigable waters' study:  U.S. Geological Survey Hydrologic Atlas:
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	U.S. Geological Survey map(s). Cite scale & quad name: 1:24000, Morrison
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	Previous determination(s). File no. and date of response letter:  Applicable/supporting case law: Rapanos and Carabell cases.
	Applicable/supporting scientific literature:  Other information (please specify):

# APPROVED JURISDICTIONAL DETERMINATION FORM U.S. Army Corps of Engineers This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook. SECTION I: BACKGROUND INFORMATION A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): April 27, 2009 DISTRICT OFFICE, FILE NAME, AND NUMBER: Denver Regulatory Office, National Renewable Energy Laboratory, NWO-2009-1014-DEN C. PROJECT LOCATION AND BACKGROUND INFORMATION: Road Side Drainages and Trickle Channel Drainages County/parish/borough: Jefferson City: Golden Center coordinates of site (lat/long in degree decimal format): Lat. 39.74131 N; Long. -104.17376 W Universal Transverse Mercator: Name of nearest waterbody: Lena Gulch Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows:NA Name of watershed or Hydrologic Unit Code (HUC): 10190002 Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request. Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form. D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY): Office (Desk) Determination. Date: April 24, 200 Field Determination. Date(s): April 24, 2009 SECTION II: SUMMARY OF FINDINGS A. RHA SECTION 10 DETERMINATION OF JURISDICTION. There Are no "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required] Waters subject to the ebb and flow of the tide. Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. B. CWA SECTION 404 DETERMINATION OF JURISDICTION. There Are no "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required] 1. Waters of the U.S. a. Indicate presence of waters of U.S. in review area (check all that apply): 1 TNWs, including territorial seas Wetlands adjacent to TNWs Relatively permanent waters<sup>2</sup> (RPWs) that flow directly or indirectly into TNWs Non-RPWs that flow directly or indirectly into TNWs Wetlands directly abutting RPWs that flow directly or indirectly into TNWs Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs Impoundments of jurisdictional waters Isolated (interstate or intrastate) waters, including isolated wetlands b. Identify (estimate) size of waters of the U.S. in the review area: Non-wetland waters: linear feet: width (ft) and/or Wetlands: acres. c. Limits (boundaries) of jurisdiction based on: Established by OHWM. Elevation of established OHWM (if known): Non-regulated waters/wetlands (check if applicable):3 Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: Upland swale vegetated with upland vegetation Boxes checked below shall be supported by completing the appropriate sections in Section III below. <sup>2</sup> For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months). <sup>3</sup> Supporting documentation is presented in Section III.F.

F. N	ON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
0	If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers
П	Wetland Delineation Manual and/or appropriate Regional Supplements.  Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
_	Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the
п	"Migratory Bird Rule" (MBR).  Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:
	Other: (explain, if not covered above): No OHWM physical indicators
fa	rovide acreage estimates for non-jurisdictional waters in the review area, where the <u>sole</u> potential basis of jurisdiction is the MBR actors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional adaption (check all that apply):
	Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
E	Lakes/ponds: acres.  Other non-wetland waters: acres. List type of aquatic resource:
Ĺ	Other non-wetland waters: acres. List type of aquatic resource:  Wetlands: acres.
P	rovide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such
а	finding is required for jurisdiction (check all that apply):  Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
Ī	Lakes/ponds: acres.
	Other non-wetland waters: acres. List type of aquatic resource:  Wetlands: acres.
SECT	ION IV: DATA SOURCES.
A. SU	PPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked
a	nd requested, appropriately reference sources below):
2	Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: NREL – Environmental and Safety  Data sheets prepared/submitted by or on behalf of the applicant/consultant.
	Office concurs with data sheets/delineation report.
_	Office does not concur with data sheets/delineation report.
- 1	
Ī	Data sheets prepared by the Corps:  Corps pavigable waters' study:
	Corps navigable waters' study:  U.S. Geological Survey Hydrologic Atlas:
2	Corps navigable waters' study:  U.S. Geological Survey Hydrologic Atlas:  USGS NHD data.
	Corps navigable waters' study:  U.S. Geological Survey Hydrologic Atlas:  □ USGS NHD data.  ☑ USGS 8 and 12 digit HUC maps.
	Corps navigable waters' study:  U.S. Geological Survey Hydrologic Atlas:  ☐ USGS NHD data.  ☑ USGS 8 and 12 digit HUC maps.  U.S. Geological Survey map(s). Cite scale & quad name: 1:24000, Morrison  USDA Natural Resources Conservation Service Soil Survey. Citation:
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# **Department of Energy**

Golden Field Office 1617 Cole Boulevard Golden, Colorado 80401-3305

07 August 2009

Ms. Susan Linner U.S. Fish and Wildlife Service Ecological Services Colorado Field Office P.O. Box 25486, DFC (MS 65412) Denver, Colorado 80225-0486

#### SUBJECT: PREBLES MEADOW JUMPING MOUSE HABITAT ASSESSMENT AT LENA GULCH

In compliance with the U.S. Fish and Wildlife Service Preble's Meadow Jumping Mouse Survey Guidelines, Revised April 2004, we have conducted a habitat assessment along Lena Gulch in documenting baseline conditions for conducting a supplemental environmental assessment for NREL's South Table Mountain (STM) Campus.

The US Department of Energy (DOE) is currently preparing an Environmental Assessment (EA) Supplement for five proposed Site Development Projects at the National Renewable Energy Laboratory's STM site: 1) Energy Systems Integration Facility (ESIF), 2) expansion of campus infrastructure, 3) Waste Handling Facility (WHF) expansion, 4) Visitor's Center expansion, and 5) the addition of a second full service access road (secondary access) to STM. The attached habitat assessment for the Preble's mouse is needed to determine baseline conditions for the secondary access portion of the EA and represents an effort by DOE to afford the U.S. Fish and Wildlife Service an opportunity to be involved early in project planning. This habitat assessment determines the potential for affecting the Preble's mouse, a federally protected species in Colorado.

Please review the attached report, prepared by Thomas Ryon (Federal Permit No. TE081867-0) of our NREL staff and provide a response at your earliest convenience. We understand that the U.S. Fish and Wildlife Service has 30 days to respond to such reports and are planning our EA schedule accordingly.

DOE plans to complete a draft EA for Public Review by September 2009. Beyond your response to this report, we welcome your input throughout the NEPA process.

Sincerely,

fer Steve Blazek, NEPA Compliance Officer

Kristin Kenvin



August 3, 2009

Ms. Susan Linner U.S. Fish and Wildlife Service Ecological Services Colorado Field Office P.O. Box 25486, DFC (MS 65412) Denver, Colorado 80225-0486

# RE: LENA GULCH ROAD CROSSING - GOLDEN, COLOROADO

Dear Ms. Linner.

On July 20. 2009, I conducted a site visit of the proposed **Lena Gulch Road Crossing** study area to assess the potential for the development of a road crossing over Lena Gulch to affect Preble's meadow jumping mouse (Preble's mouse) habitat. The National Renewable Energy Lab is considering a second full service access road from South Golden Road to the South Table Mountain (STM) Complex to accommodate future growth at the facility. The road would likely cross Lena Gulch to create a southern route for STM access. Figure 1 presents the project area.

The US Department of Energy (DOE) is currently preparing an Environmental Assessment (EA) Supplement for five proposed Site Development Projects at the National Renewable Energy Laboratory's STM site: 1) Energy Systems Integration Facility (ESIF), 2) expansion of campus infrastructure, 3) Waste Handling Facility (WHF) expansion, 4) Visitor's Center expansion, and 5) the addition of a second full service access road (secondary access) to STM. This habitat assessment for the Preble's mouse is needed to determine baseline conditions for the secondary access portion of the EA and represents an effort by DOE to afford the U.S. Fish and Wildlife Service an opportunity to be involved early in project planning. This habitat assessment determines the potential for affecting the Preble's mouse, a federally protected species in Colorado.

#### **Project Location**

The project location is north of I-70 and west of Denver West Parkway on a portion of the former Camp George West National Guard facility in Jefferson County. The land within the project area includes private land and land currently owned by Jefferson County Open Space and leased by the Pleasant View Metropolitan District (T04S, R70W, SEC 01, NE1/4 – Morrison Quadrangle-Figure 1). The UTM coordinates (NAD83) representing the upstream and downstream extents of the project area under consideration are upstream: Zone 13, 4398241mN, 484740mE; downstream: Zone 13, 4398582mN and 485724mE. Adjacent properties include the Pleasant View Subdivision to the west, NREL to the north, the Colorado State Patrol Academy and correctional facility to the south, and the Richards Heights subdivision and a larger private parcel to the east. Access to the site is from South Golden Road and Kilmer Street.

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# Vegetation and Habitat

Lena Gulch originates in the foothills in the Apex Park Open Space west of the Heritage Square Amusement Park. The gulch continues east and is often conveyed in concrete canals through the Golden area. Lena Gulch becomes forested as it crosses South Golden Road with typical tree species of riparian areas in eastern Colorado. After crossing two private parcels, Lena Gulch crosses into the Pleasant View Community Park and this reach extends through the park for approximately ½ mile. Once the drainageway crosses back into private land, it again becomes channelized and adjacent land use encroaches as Lena Gulch crosses through urban and suburban landscapes until it reaches its confluence with Clear Creek near the intersection of 44<sup>th</sup> Avenue and Kipling Street.

Common trees along this reach within Pleasant View Community Park include plains cottonwood (Populus deltoides), peachleaf willow (Salix amygdaloides), Russian olive (Elaeagnus angustifolia), green ash (Fraxinus pennsylvanica), and Siberian elm (Ulmus pumila) (Photo 1). Shrubs are localized along the riparian zone and include chokecherry (Prunus virginiana), wild plum (Prunus americana), and red hawthorn (Crataegus erythropoda). Only one small area along Lena Gulch, supports sandbar willow (Salix exigua). Understory vegetation consists mostly of grasses including smooth brome (Bromus inermis), reed canarygrass (Phalaris arundinacea), and tall fescue (Schedonorus phoenix) (Photo 2).

Upland vegetation includes grasses and a dominance of weedy herbs. Dominant plants include western wheat grass (*Pascopyrum smithii*), crested wheat grass (*Agropyron cristatum*), smooth brome, cheatgrass (*Bromus tectorum*), and fringe sage (Artemisia ludoviciana).

Remnant drainageways remain, north of Lena Gulch and a patch (about ½ acre) of sandbar willow remains along one of the larger drainageways (Photo 3). These drainageways were more evident before Pleasant View Metro District began re-engineering of the drainage patterns across the site. Also, the entire site was likely disturbed and reworked during operations of Camp Georg West and during decommissioning.

Lena Gulch has an incised channel (Photo 4) throughout this reach and overbank flooding appears limited to a few locations. Recently, the Pleasant View Metro District has created a side channel to the south of the natural drainage for wetland mitigation and flood storage (Photo 5). This area was excavated and lined with rip-rap and is now supporting robust cattail (*Typha latifolia*) stands and diverse wetland vegetation upgradient from the cattails.

# History of Trapping and Habitat Assessments in the General Area

Lena Gulch at the Camp George West site was trapped previously (Kane 1999). No Preble's mice were captured during this trapping effort. An interesting observation from this report and an ecological report (Anderson 1999) was the reporting of willows and other shrubs in the understory of the riparian zone. Currently, the riparian area supports only one small patch of sandbar willow and a larger patch off-channel. These past reports seem to indicate that shrubs was much more widespread 10 years ago.

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Once Lena Gulch passes under Interstate 70 near Denver West Parkway, it enters the Denver Urban Drainage Block Clearance Area. Considering past trapping and the Lena Gulch drainageway, the riparian area found within this study area is isolated and does not support Preble's mouse habitat given the history of the area and the continued human presence and disturbance the site has experienced. Additionally, succession or stream processes (i.e., increased channel down-cutting) have eliminated riparian shrub communities once present at the site.

#### Recommendations

Given the past trapping results, the history of the site, and the relative isolation of this site in a surrounding urban/suburban landscape, it seems very unlikely that Lena Gulch supports a population of Preble's mice. Any impacts from the development of a road and associated creek crossing would not impact the Preble's mouse. Therefore, I recommend that this area be disqualified as habitat for the Preble's mouse. It may also be appropriate to incorporate this area of Lena Gulch into the Denver Urban Drainage Block Clearance Area.

I ask that you provide written concurrence to this habitat assessment if you agree with the disqualification. If you have further questions or concerns regarding this assessment, please contact me.

Sincerely,

Thomas Ryon, Wildlife Biologist

Cc: Tom Anderson - Battelle

Steve Blazek - DOE, Golden Field Office

John Eickhoff - EHS, NREL

Thomas Ryor

# References

Anderson & Company. 1999. Preble's mouse trapping at Camp George West park site. Prepared for Pleasantview Metropolitan District and The Norris Dullea Company. July. 10+photos and appendix.

Kane, D. 1999. Preble's mouse trapping at Camp George West park site. Prepared for Pleasantview Metropolitan District and The Norris Dullea Company. September. 11 pp+ photos and appendix.

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Photo 1. Riparian forest gallery line Lena Gulch.



Photo 2. Understory along Lena Gulch is primarily grasses.

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Photo 3. An isolated patch of willow shrubs found north of Lena Gulch. Lena Gulch is in the background of this photo with the willow patch in the mid-ground.



Photo 4. Lena Gulch is incised for most of its length through the Pleasant View Park.

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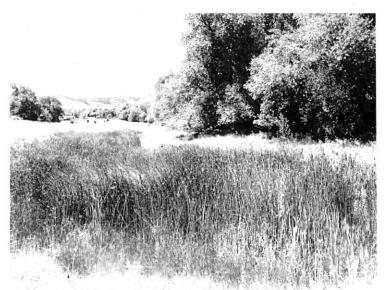
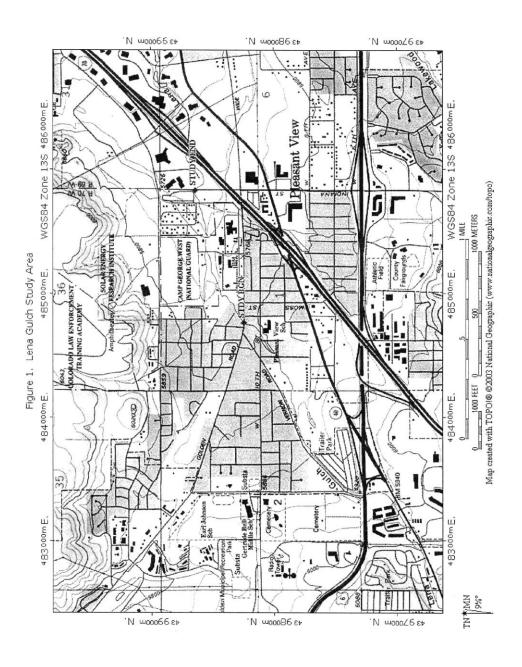


Photo 5. Constructed wetlands and flood storage channel adjacent to the south bank of Lena Gulch.



Susan Linner Page | 8

U.S. Fish & Wildlife Service

Colorado Field Office

Preble's Meadow Jumping Mouse

**Survey Field Data Compilation Form** 

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### Preble's Meadow Jumping Mouse, Zapus hudsonius preblei 2005 Survey Field Data Compilation Form

☐ TRAPPING SURVEY ☑ EVALUATED, NOT TRAPPED
Fill out both sections 1 and 2 if trapping survey, fill out section 1 only if habitat evaluation (ie. not trapped). Compilation forms needed for updated habitat evaluations and site disqualification requests.
SECTION 1 Surveyor:
Date of Site/Habitat Assessment 20 July 2009
Organization/Company National Renewable Energy Laboratory Full Name(s) Tom Ryon
Full Name(s)Tom Ryon
Location:  Project Name (if applicable) Environmental Assessment of the Southern Access Route from the NREL South Table Mesa Campus.  Project Description (nearby road intersection, type of impact, etc.) South Golden Road and considering
several potential intersections but only one will be chosen. Included are Quaker Street, Moss Street,
McIntyre Street, Kilmer Street, and Isabella Street. Project will likely be a road crossing of Lena Gulch.
U.S.G.S. Quad Name Morrison County Jefferson Elevation 5,810 to 5730 feet  Township(s) 4S Range(s) 70W Section(s) 1  1/4/4 Section(s) NE
UTM Coordinates, Zone 13 Northing 484740 to 485724m Easting 4398241 to 4398582m
UTM Coordinate Datum NAD27 NAD83 .
Directions to Location 1-70 to West Colfax Blvd, South on Colfax to South Golden Road. North on
South Golden Road to Isabell to bridge crossing over Lena Gulch. Travel upstream on foot to where
Lena Gulch goes under South Golden Road.
Land OwnershipJefferson County Open Space - Leased by Pleasant View Metro District
Habitat:
General Habitat Description: Riparian mixed gallery forest including Plains Cottonwood and Peachleaf
Willow surrounded by grasslands and upland swales
Dominant Overstory Plant Community: <u>mixed riparian forest of cottonwood and non native tree species</u>
including plains cottonwood, peachleaf willow, Russian olive, green ash, and Siberian elm.
Dominant Understory Plant: Community grass and minor herb component. Nearly completely lacking a shrub component.
Current Land Use open space
Drainage Name: Lena Gulch Type: Perennial Stream XXXXX
Ephemeral Stream Pond/Lake Ditch Other



#### United States Department of the Interior

FISH AND WILDLIFE SERVICE Ecological Services Colorado Field Office P.O. Box 25486, DFC (65412) Denver, Colorado 80225-0486

IN REPLY REFER TO: ES/CO: T&E/PMJM/other 65412-2009-I-0553

AUG 2 0 2009

Steve Blazek Department of Energy, Golden Field Office 1617 Cole Boulevard Golden, Colorado 80401-3305

Dear Mr. Blazek:

We are responding to your letter of August 07, 2009, requesting site disqualification under the authority conferred to the U.S. Fish and Wildlife Service (Service) by the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*). The Service has reviewed the Preble's meadow jumping mouse, *Zapus hudsonius preblei* (Preble's), habitat assessment report for proposed Department of Energy's proposed **Lena Gulch Road Crossing** in Jefferson County, Colorado (Section 1, Township 4 South, Range 70 West).

Based on the information provided, the Service finds the report acceptable and agrees that a population of Preble's is not likely to be present within the subject area. The Service concludes that the proposed crossing should not have direct adverse effects on Preble's or Preble's habitat. Thus, this site is disqualified for consideration under provisions of the ESA.

Please note that this clearance is valid for one year from the date of this letter. Should additional information regarding listed or proposed species become available, this determination may be reconsidered under the ESA. If the proposed project has not commenced within one year, please contact the Colorado Field Office to request a clearance extension.

If we can be of further assistance, please contact Peter Plage of my staff at (303) 236-4750.

Sincerely,

Susan C. Linner

Colorado Field Supervisor

pc: Plage

PPlage:PMJMSurvey\2009.11:0822 09



#### Department of Energy

Golden Field Office 1617 Cole Boulevard Golden, Colorado 80401-3305

August 11, 2009

Mr. Edward Nichols State Historic Preservation Officer Colorado Historical Society 1300 Broadway Denver, Co 80203 (303) 866-3355

Dear Mr. Nichols:

SUBJECT: CURRENT STATUS OF U.S. DEPARTMENT OF ENERGY NEW SECOND FULL ACCESS ROAD TO THE NATIONAL RENEWABLE ENERGY LABORATORY'S SOUTH TABLE MOUNTAIN SITE (DOE/EA1440S-II)

The purpose of this letter is to provide you with updated information regarding the U.S. Department of Energy's (DOE) plan to evaluate alternative corridors for a potential new access road into the National Renewable Energy Laboratory (NREL) South Table Mountain Site (STM) site. Since our last correspondence, in the winter of 2008, DOE has worked with other Federal (US Fish & Wildlife, Army Corps of Engineers), State (Colorado Department of Transportation, Colorado Natural Heritage Office), and local agencies (Jefferson County, Lakewood, Golden, Pleasant View Metro) and private land owners to characterize the alternative corridors available to DOE for a new site entrance. Through this process we have modified the corridors under consideration and added Quaker Street to the range of alternatives under consideration, which are shown on Figures A-1 and A-2 in Appendix A.

We met recently with Ms. Amy Pallante and Ms. Sarah Rothwell from your office and obtained new information about historic resources in the vicinity of our corridors. For your information, we have included summary information and photographs regarding the resources within Camp George West that could be affected (Appendix A), and have provided the information made available from the data base search provided by Ms. Rothwell for the other resources shown on Figures A-1 and A-2 (Appendix B). Additionally, we must advise that the Golden Gun Club Clubhouse, a non contributing resource #104 in the National Register Forms prepared by the Simmons of Front Range Associates in September 1992, was destroyed in an arson fire the weekend of July 25-26, 2009.

Since our last correspondence, our traffic engineers have further reviewed Kilmer Street under corridor D and reversed our previous determination that this alternative could be implemented without widening the current roadway. Thus, resources along this route could be disturbed if this alternative is selected, and analysis of this impact will be included in the EA.

As we discussed in our meeting with Ms. Pallante, if a Finding of No Significant Impact (FONSI) results from the Environmental Assessment (EA), we plan to select a corridor from the alternatives based on the analyses provided in the EA. Subsequent to the selection of a corridor, DOE and NREL would evaluate specific routes within the selected corridor. At that time we anticipate further consultations with your office and other parties regarding the Area of Potential Effects (APE) and the potential for adverse effects on historic properties under Section 106 of the National Historic Preservation Act (Section 106) before finalizing a route. At this stage of decision-making, the EA will consider the areas shaded on Figures A-1 and A-2 for each corridor our APE.

If your records indicate that there may be additional resources within these corridors that are not shown on the figures or included in the Appendices, please include the identification of any such resources in your response to this letter. Additionally, if you have specific concerns at this time over the use of any of the alternative corridors please advise, so that we may take your input into consideration in our analyses in the EA.

DOE appreciates your participation in this process and will work closely with you and your staff as we comply with Section 106 of the National Historic Preservation Act and with the Advisory Council on Historic Preservation regulations.

We look forward to further consultations on this project. Please contact me at (303) 275-4723 for additional information.

Sincerely,

Steve Blazek
NEPA Compliance Officer

Knotin Kenin

Enclosure:

Appendix A - Resources Summary for the Camp George West Historic District

Appendix B - Inventory of Cultural Resources

Appendix A

Resources Summary for the Camp George West Historic District

# APPENDIX A RESOURCES SUMMARY FOR THE CAMP GEORGE WEST HISTORIC DISTRICT

Camp George West is a Colorado Army National Guard installation located in central Jefferson County, Colorado, approximately 3 miles east of the City of Golden and 10 miles west of downtown Denver. The facility is situated in an unincorporated area known as Pleasant View, with the City of Golden to the west and the City of Lakewood to the east.

Camp George West Historic District was listed on the National Register of Historic Places (NRHP) in 1993 (NRHP 2008). This appendix discusses the district's location and setting, background, and historic

significance, then describes the resources within the district boundaries that could be affected if a South Entrance were built.<sup>1</sup>

#### Location and Setting

The geographic setting and location of the Camp George West site has strongly influenced its development and architecture. The site is located at the edge of the foothills of the Rocky Mountains and encompasses part of South Table Mountain. Lena Gulch and unnamed tributaries flow from west to east through the camp, and dry washes extend down the sides of South Table Mountain and join Lena Gulch. The steep sides of South Table Mountain provided a natural backdrop for target practice, and the top of the mountain was quarried for stone used in street surfacing, construction of many Camp George West buildings, and other projects. The relatively flat part of the camp lying south of the plateau was used for training and as a parade ground, while the southernmost portion along both sides of South Golden Road was the setting for most of the facility's buildings.

The Pleasant View area, which lies mainly to the west and south of Camp George West, is an older residential area. More recent suburban

#### Glossary of NRHP terms used in this appendix

Site: the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archeological value regardless of the value of any existing structure

**District**: a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development

**Building**: a resource created principally to shelter any form of human activity, such as a house

**Structure**: a functional construction made for purposes other than creating shelter, such as a bridge

**Object**: a construction primarily artistic in nature or relatively small in scale and simply constructed, such as a statue or milepost

Source: National Park Service: http://www.nps.gov/history/nr/publications/bulletins/nrb16 a/nrb16a appendix IV.htm

residential and office development lies to the north and east. A profusion of intersecting roadways pass near or through the installation. Interstate 70 passes close to the southwest corner of the camp on a southwest-northeast axis. West Colfax Avenue (U.S. 40) and West 6<sup>th</sup> Avenue (U.S. 6) follow alignments south of the facility. South Golden Road cuts through the southern section of the camp on an east-west route.

<sup>&</sup>lt;sup>1</sup> The information in this appendix was obtained from two NRHP forms: (1) the Multiple Property Documentation Form, and (2) the Registration Form, prepared by Front Range Research Associates, Inc. (1992a, 1992b).

#### Appendix A

Resources Summary for the Camp George West Historic District

#### Contributing vs. Noncontributing Resources

Some historic districts, including Camp George West, contain a mix of contributing and noncontributing resources. A contributing resource is a site, building, structure, or object that adds to the historical associations, historic architectural qualities, or archeological values for which a property is significant. A contributing resource has the following characteristics:

- It was present during the period of time that the property achieved its significance;
- It relates to the documented significance of the property;
- It possesses historical integrity or is capable of yielding important information relevant to the significance of the property.

Any resource within a district that lacks such associations, qualities, or values is called a noncontributing resource.

Source: http://www.nps.gov/history/nr/publications/bulletins/arch/pt5.htm

#### Background

The district is an architecturally cohesive collection of buildings and structures associated with a Colorado Army National Guard installation. Camp George West, established in 1903, was the Colorado National Guard's only permanent training facility and was an integral part of the National Guard's activities in Colorado, serving as the principal storage and supply center and the site of summer encampments. The district encompasses historic resources along both sides of South Golden Road, including the highest concentration of historic resources associated with the post. Included are the major historic administrative, residential, storage, utility, and training facilities of the camp, constructed during the period 1903 to 1945.

The resources reflect a variety of masonry techniques utilizing stone obtained on post lands and quarried from the camp quarry. One of the largest collections of Works Progress Administration (WPA)-sponsored buildings in Colorado is located on the grounds of Camp George West, reflecting the installation's significant role in providing employment during the 1930s.

The district incorporates 82 resources, including 64 (78 percent) contributing historic resources and 18 (22 percent) noncontributing resources. Of the 64 contributing historic resources, 51 are buildings, 11 are structures, and 2 are objects. The initial parcel of land acquired for the post in 1903 was cut on its southern end by South Golden Road and the track of the Denver and Inter-Mountain Railroad. This division was to influence the subsequent development of the installation. While the size of the post increased and contracted over the years, most of the buildings constructed at Camp George West were located in the southern section close to transportation facilities.

During the 1927-1941 period, a long east-west row of mess halls was built just north of South Golden Road. Two more mess halls were built farther to the north. Concrete tent pads were built in rows in an encampment area behind the mess halls and provided bases on which tents were pitched during summer encampments. Bathhouses/latrines were located on the east and west sides of the camp, and four magazine structures were in the northeast area. An administrative quadrangle also was built north of South Golden Road. The headquarters building and guardhouse are located here.

The area north of Lena Gulch contained a number of uses. The extreme western portion was developed as a rifle firing range in the mid-1920s. Four concrete firing lines are located here. The central area was used as a training area and parade ground for summer encampments and as a grass landing field for small

#### Final Supplement-II to Final Site-Wide Environmental Assessment: National Renewable Energy Laboratory South Table Mountain Site

#### Appendix A

Resources Summary for the Camp George West Historic District

aircraft. A plane hangar and quonset hut installed during 1949 were later removed and the landing field abandoned in the late 1950s. The eastern portion of this area was developed as a recreation area during the 1930s, containing a recreation hall, outdoor swimming pool (no longer in existence), and tennis courts (no longer in existence).

The buildings and structures of the Camp George West Historic District have been categorized according to the following NRHP categories:

- administrative and general support buildings
- · equipment and supply storage facilities
- · residences, cantonment structures, and troop support buildings
- recreational facilities
- firing range
- water storage and distribution structures
- transportation-related facilities
- · fence and gate structures

#### Historic Significance

The Camp George West Historic District is a concentrated and architecturally cohesive group of historic resources representing the historic growth and development of the Colorado National Guard's only permanent historic storage and training installation. The district is historically significant for the following reasons:

- In the field of military history, the district is associated with the historic activities of the Colorado National Guard and with the 757<sup>th</sup> Military Police Battalion of the World War II era.
- In the field of social history, the district is associated with numerous 1930s New Deal era public works relief projects.
- The district's architecture represents a large group of native stone and frame buildings designed
  to reflect an overall architectural theme and to perform a variety of functions required for
  National Guard activities. The architecture of the installation reflects the expanding role of the
  Colorado National Guard, the influence of popular architectural styles, evolution of military
  technology, and changes in construction methods and building materials.

Within the district, 68 of the 82 resources are associated with the development of the post prior to 1945. Only 14 of the properties within the district are of post-1945 construction. The period of significance extends from the creation of the post in 1903 to 1945, coinciding with the end of activities associated with World War II and the construction of temporary buildings during that era. Sixty-four (78 percent) of the resources within the district are more than 50 years old. Within the district is the oldest building still in existence on the post, the officers' clubhouse/caretaker's residence, reflecting the earliest period of development of the site. In addition, the district includes the majority of buildings erected during later historic periods of development in the 1920s and 1930s, with a few examples from the World War II era.

A substantial number of the buildings and structures erected during the 1930s as a result of New Deal public works relief programs are included in the district and form one of the largest collections of WPA-sponsored building in the state. Programs such as the WPA provided funding for construction of buildings and structures at the post during the Depression era. A camp for transient workers was established at the camp during the mid-1930s; over half of the historic resources at the post were built during this period. The various projects employed hundreds of men and helped relieve area unemployment in Colorado. The

#### Final Supplement-II to Final Site-Wide Environmental Assessment: National Renewable Energy Laboratory South Table Mountain Site

#### Appendix A

Resources Summary for the Camp George West Histo

buildings within the district are also associated with National Guard activities such as strike and r natural disaster assistance, mobilization for Mexican border service and for war, and military train addition, the post was a training site during World War II for military police.

A significant number of buildings within the district are constructed of native fieldstone and stone obtained from the post's quarry on South Table Mountain, which give the post a unique architectur identity. The early stone buildings constructed at Camp George West embody style elements such a gabled roofs, battered piers, and multi-pane windows and were built of unquarried stone found on the post. The Depression-era buildings and structures reflect design elements such as multiple narrow windows, complex roofs, and a variety of wall projections that were included to increase the amount labor necessary for their construction. Residences built during the 1930s feature multiple gables and multi-pane windows. The Depression-era buildings were largely composed of stone quarried on the installation. The small group of World War II temporary buildings erected at Camp George West represent standard plans and the conservation of labor and materials.

The majority of buildings within the district possess the physical characteristics required to be evaluate as contributing elements. In general, the storage buildings and the mess halls have undergone more alterations than other resources due to their adaptation to new uses. However, the original scale, construction techniques, workmanship, location, setting, and much of the original materials are still apparent in these resources. The most common alterations within the district are the remodeling of doors and windows, and less frequently, the addition of nonhistoric siding. A few buildings have been enlarged with enclosed entrance bays or small wings, but none of the additions is large or intrusive enough to diminish the integrity of the buildings. In general, the buildings within the district maintain a high integrity of design, scale, location, craftsmanship, setting, and materials, and as a group convey the historic associations which resulted in their creation.

#### Physical Characteristics of Historic Resources at Camp George West

The physical characteristics of the buildings erected at Camp George West were determined by the themes set by the early architecture of the post and the materials and manpower available at the time the buildings were erected. The first permanent building erected on the post was an officers' clubhouse/caretaker's residence, designed by architect Albert Bryan. Built in 1911-1912 south of South Golden Road, the officers' clubhouse/caretaker's residence utilized native stone construction with design elements such as a gabled roof, overhanging eaves with exposed rafters, and multi-pane windows. These elements influenced subsequent buildings and resulted in the creation of a unique architectural environment. Buildings erected during the 1910s and 1920s repeated elements of Bryan's work.

During the 1930s, a quarry that operated under the auspices of various public works programs supplied materials, and public relief agencies supplied manpower for buildings. George H. Merchant, architect for the buildings constructed during this period, used native stone for the post's buildings. The buildings of this era were designed with numerous narrow windows, wall buttresses, and complex rooflines in order to utilize as much labor as possible, thereby giving work to unemployed men. The built environment of the post grew substantially during the 1930s as a result of these public works projects.

During World War II, a small number of temporary buildings were erected following standard plans provided by the Quartermaster Corps. To conserve materials and time, these temporary buildings were simple frame structures similar to thousands of others built on military installations across the country.

Appendix A

Resources Summary for the Camp George West Historic District

#### Descriptions of the Potentially Affected Resources

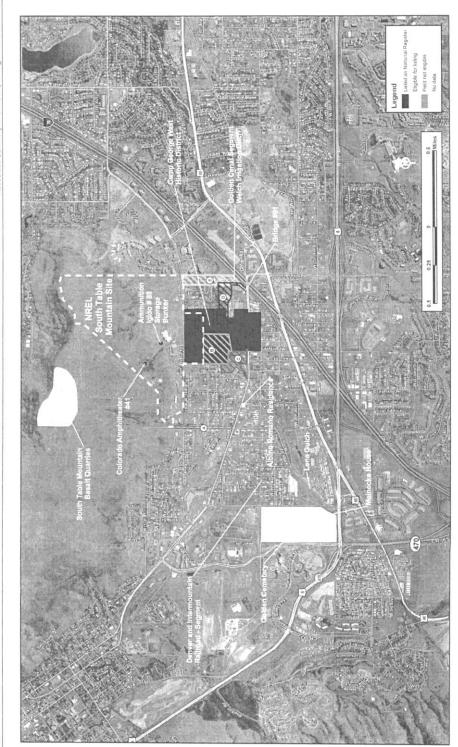
Table A-1 lists the potentially affected resources at Camp George West, their year of construction, their historic status (contributing or noncontributing), and the nearest corridor(s) along which each resource lies. Of the 15 potentially affected buildings and structures, 13 are contributing resources and 2 are noncontributing resources. All of the potentially affected resources lie north of South Golden Road.

Table A-1. Camp George West Resources Potentially Affected under the Proposed Action

Resource	Resource Number	Year of Construction	Historic Status	Nearest Proposed Corridor(s)
Administrative and General Su	upport Buildings			
Headquarters	45	1937	Contributing	D
Guardhouse	83	1940	Contributing	D
Equipment and Supply Storag	e Facilities			
Small Arms/	33	1925	Contributing	D
Ammunition Storage				
Motor Vehicle Storage	111	1953	Noncontributing	B, D
Residences, Cantonment Stru	ctures, and Tro	op Support Buildin	igs	
Mess Hall	12	1936	Contributing	D
Mess Hall	28	1941	Contributing	D
Mess Hall	29	1941	Contributing	D
Recreational Facilities				
Recreation Hall	48	1937	Contributing	D
Outdoor Swimming Pool <sup>a</sup>	49	1936	Contributing	D
Firing Range				
Rifle Firing Range	FR12	1924	Contributing	B, C
Water Storage and Distributio	n Structures			
Pump House <sup>a</sup>	84	1927	Contributing	В
Transportation-Related Facilit	ies			
Pedestrian Underpass	50	1934	Contributing	D
Bridge	92	1940	Contributing	В
Bridge	113	1938	Contributing	D
Other Buildings/Structures				
Golden Gun Club	104	1941	Noncontributing	В
Clubhouse (lost to fire July 2009)				

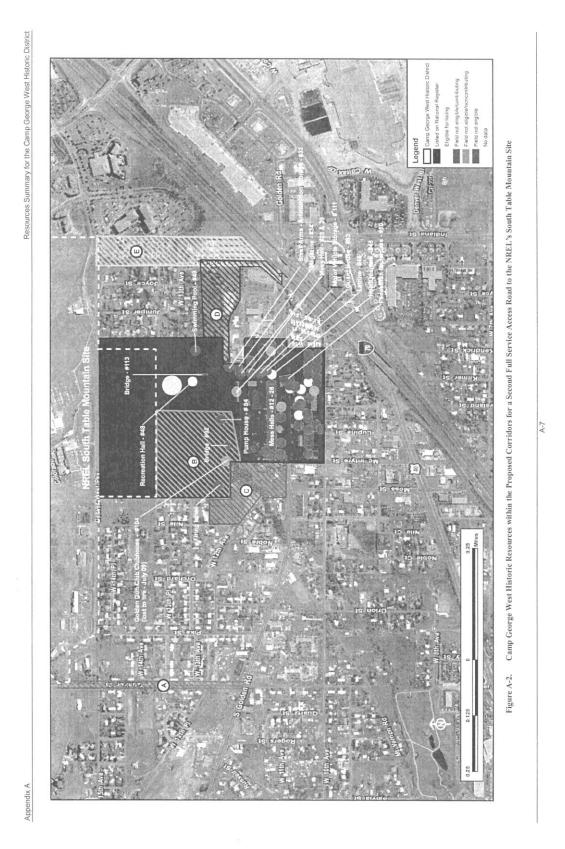
a. The Outdoor Swimming Pool and the Pump House are no longer in existence.

The following sections describe the buildings and structures that could be affected if one of the five proposed corridors were built. The locations of these resources are shown on Figures A-1 and A-2.



4-1. Historic Resources within the Proposed Corridors for a Second Full Service Access Road to the NREL's South Table Mountain Site

9-Y



Results of the Office of Archaeology and Historic Preservation Search

#### Administrative and General Support Buildings

Building 45—Headquarters (1937)

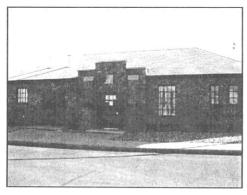
A focal point of the post is the headquarters building erected in 1937 with funding from the WPA. The building was designed by George H. Merchant to employ as many hours of labor as possible in its construction, thereby providing employment for public relief workers. Included in the design were a complex roofline, many windows, and several wall projections. The one-story split fieldstone building has a central bay with a steeply pitched roof intersected on each end by roof wings. The central bay has a low, shed-roofed projecting façade



Headquarters (Building 45)

presenting the building's central entrance. Above the entrance is a pediment arch that is stuccoed and decorated with the state seal. The entrance is flanked by a pair of casement windows with concrete sills. Flanking these are large 16-pane windows.

At the corners of the main bay are engaged stone pilasters. In 1956, a frame addition was added to the eastern wing of the building. The main entrance has been remodeled, as have entrances on the east and west wings.



Guardhouse (Building 83)

Building 83—Guardhouse (1940)

The guardhouse was one of the WPA-funded projects which erected major administrative and support buildings around the central quadrangle of the post. George H. Merchant designed the building to employ a maximum amount of labor through the inclusion of numerous windows and wall projections. The onestory, randomly coursed, split stone building has a pitched roof. A central, slightly projecting entrance features a stepped parapet with cast cement coping. Flanking the entrance are engaged stone pilasters with cast cement trim. Stonework above the entrance opening forms a slight arch. Windows are multi-pane casements with cast sills. The building has a raised

concrete foundation, which has been painted. The original main entrance has been enclosed and has a window. The east elevation has an enclosed entrance bay with nonhistoric siding.

#### **Equipment and Supply Storage Facilities**

Building 33—Small Arms/Ammunition Storage (1925)

This one-story rectangular frame building has tongueand-groove siding and a gabled roof with overhanging eaves and exposed rafters. The northern elevation has a central sliding wooden door that opens onto a small loading dock and is flanked by small multi-pane windows. A second sliding door is on the west. Windows are mostly six-pane with wood trim. One window on the east elevation has been replaced with a metal vent.

Building 111—Motor Vehicle Storage (1953)

Built in 1953, after the period of significance (1903 to 1945), Building 111 was constructed north and west of the Headquarters and Guardhouse. This quonsethut-style building has been designated a noncontributing resource, meaning it lacks any associations, qualities, or values that would contribute to the significance of the Camp George West Historic District.

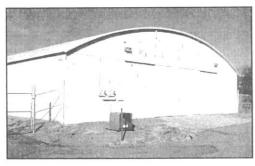
#### Residences, Cantonment Structures, and Troop Support Buildings

Building 12—Mess Hall (1936)

This building is one of 11 remaining of 17 mess halls built during the period 1936-1941 on the post. It is representative of the current appearance of the buildings. This mess hall is a one-story front gable building with overhanging eaves. The lower portion of the building to sill height is composed of quarried basaltic stone rubblework; the upper walls are frame, now covered with nonhistoric siding over the original horizontal tongue-and-groove siding. The building has central entrances on gable end walls. The south entrance originally had double doors but now has a single door. Side elevations had central doors that are now covered up. Original six-pane windows have



Small Arms/Ammunition Storage (Building 33)



Motor Vehicle Storage (Building 111)



Mess Hall (Building 12)

been replaced with sliding windows. Original corrugated iron roofing has been replaced with shingle roofing.

Buildings 28 and 29—Mess Halls (1941)

The basic design of these mess halls, built approximately 5 years after Building 12, was essentially the same as the design for Building 12. However, the stone masonry on the lower portion of these buildings is more polygonal, with the stones quarried to a flatter surface.

#### Results of the Office of Archaeology and Historic Preservation Search



Mess Hall (Building 28)



Mess Hall (Building 29)

#### **Recreational Facilities**

Building 48—Recreation Hall (1937)

This one-story building was designed to accommodate leisure-time activities of Guardsmen as a WPA public works relief project. The walls of the building are composed of fieldstone set with wide mortar seams. The cross-gabled roof has widely overhanging eaves, decorative beams, and exposed rafters. A projecting, gabled, central entrance bay is



Recreation Hall (Building 48)

flanked by wraparound porches with stone pillar supports and walls. Over the entrance is a flat stone lintel. All windows have multiple panes (six or eight) and cast cement sills. The interior features a large fieldstone fireplace. The building has nonhistoric doors, the windows have metal grills, and a portion of the porch has been enclosed.

Structure 49—Outdoor Swimming Pool (1936)

The concrete outdoor swimming pool is no longer in existence; in its place is a wetland. The pool, built as a public works relief project, was a 50- by 90-foot rectangle that varied in depth from 3 feet on the western shallow end to 8 feet on the eastern end. The edge of the pool was surrounded by a narrow wall approximately 18 inches high, which was topped by a flat concrete top. An L-shaped concrete bench was located northwest of the pool. The pool originally had a diving board in the center of the east end and metal access ladders adjacent to the diving board and at the northeast and southeast corners. The pool was enclosed by a chain link fence.



Wetland occupying the original location of the outdoor swimming pool (Structure 49)

Results of the Office of Archaeology and Historic Preservation Search

#### Firing Range

Structure FR12—Rifle Firing Range (1924)

Located northwest of the principal concentration of buildings at Camp George West, on the western edge of the installation, the lines of the firing range are oriented east-west and consist of a 600-yard line (farthest to the south), a 500-yard line, a 300-yard line, and a 200-yard line (farthest to the north). The lines are constructed of concrete, approximately 340 feet long and 1 foot wide, flush with the ground on the side of the shooter and about a foot above the ground on the side of the target. The 600-yard line is intact; the remaining three are missing segments where a dirt road and/or channelized drainage cuts through the lines. The rifle range was utilized during summer encampments of the Colorado National Guard during the 1920s and 1930s. During World War II, the 757th Military Police Battalion used the range.

Rifle Firing Range (FR12)

#### Water Storage and Distribution Structures

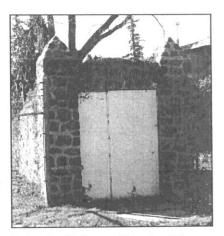
Structure 84—Pump House (1927)

The pump house is no longer in existence. The pump house was a small, wedge-shaped, one-story frame structure with drop siding and a shed roof that extended to the ground. It had a stone foundation and a central door constructed of vertical boards. By the 1980s, the structure was in an advanced state of deterioration (Front Range Research Associates, 1992b).

#### **Transportation-Related Facilities**

Structure 50—Pedestrian Underpass (1934)

A Civil Works Administration project completed this pedestrian tunnel under South Golden Road and the Denver and Inter-Mountain railroad tracks to connect the northern and southern portions of the camp. The concrete-lined passageway consists of steps and a tunnel with sloping floors toward a level midsection. Entrances on either end are wedge-shaped and composed of split fieldstone. Stone posts with pyramidal tops stand at the corners of the entry and extend beyond the roofline. The roof is slightly curved and covered with a thin layer of concrete. The entrance on the southern end is open, while the one on the north is covered with a metal door and siding.



Pedestrian Underpass (Structure 50)

Results of the Office of Archaeology and Historic Preservation Search



Bridge (Structure 92)



Bridge (Structure 113)



Golden Gun Club Clubhouse (Building 104)

## Other Buildings/Structures

Building 104—Golden Gun Club Clubhouse (1941)

Structure 92—Bridge (1940)

This bridge over Lena Gulch was built as part of the WPA project to improve the post and provided easier access to the northwest quadrant of the camp and firing range. The one-lane bridge has a reinforced flat concrete deck and a 10-foot roadway with a 3-foot sidewalk on the east. The span of the bridge is 14 feet. The bridge abutments are composed of roughly split basaltic stone laid in courses. The side walls of the bridge are flared, rounded, and tapered and have a top layer of concrete.

Structure 113—Bridge (1938)

This two-lane bridge in the north-central section of Camp George West was constructed in 1938 as a WPA project. The bridge separately spans Lena Gulch and an unnamed tributary to that stream. It has a reinforced concrete slab deck and split fieldstone abutments with thick mortar. The roadway is 20 feet wide with stone walls higher toward the center of the bridge, where the land drops off beneath. A layer of projecting fieldstones is cemented to the top of the bridge walls, and metal railings flank the bridge deck. The total length of the bridge and its approaches is approximately 140 feet.



Golden Gun Club Clubhouse - lost to fire (July 2009)

This small one-story gabled building is composed of hand-made concrete blocks with decorative rocks embedded in them in decorative patterns. The building was not built by the military, and the National

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Results of the Office of Archaeology and Historic Preservation Search

Guard did not take possession of the building until 1948; therefore, it does not meet the requirements for a contributing resource within the district. This building was destroyed by fire the weekend of July 25-26, 2009

#### References

- NRHP (National Register of Historic Place), 2008. COLORADO Jefferson County Historic Districts, online at <a href="http://www.historicdistricts.com/co/Jefferson/districts.html">http://www.historicdistricts.com/co/Jefferson/districts.html</a>.
- Front Range Research Associates, 1992a. National Register of Historic Places, Multiple Property Documentation Form, September 1, 1992, online at <a href="http://www.nr.nps.gov/multiples/64500062.pdf">http://www.nr.nps.gov/multiples/64500062.pdf</a>.
- Front Range Research Associates, 1992b. National Register of Historic Places, Registration Form, September 1, 1992.

A-13

Results of the Office of Archaeology and Historic Preservation Search

# APPENDIX B RESULTS OF THE OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION SEARCH OF THE COLORADO INVENTORY OF CULTURAL RESOURCES FOR AN AREA IN THE FOLLOWING SECTIONS:

PM	TOWNSHIP	RANGE	SECTION
6th	4S	70W	1, 2
6th	3S	70W	36

Development of a new access road to the STM site may have the potential for direct or indirect impacts in these sections.

Table B-1. Results of the Office of Archaeology and Historic Preservation Search of the Colorado Inventory of Cultural Resources within the Camp George West Historic District

Resource ID	Resource Name	Resource Type	Resource Address	Eligibility Status
5JF.1032	Meinecke House	Historic	605 Ulysses St., Golden	Field not eligible
5JF.1033.1	Lena Gulch	Historic Historical Archaeology	Mt. Vernon Rd. N & S of U.S. 6, Golden	Field not eligible
5JF.145	Camp George West Historic District	Historic District	15000 S. Golden Rd., Golden Vicinity	Listed on National Register 106 - Officially eligible Field not eligible
5JF.145.1	Mess Hall Building Number 11	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.10	Mess Hall Building Number 20	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.11	Mess Hall Building Number 21	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.12	Mess Hall Building Number 22	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.13	Mess Hall Building Number 23	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.14	Mess Hall Building Number 24	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.15	Mess Hall Building Number 25	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.16	Mess Hall Building Number 26	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.17	Mess Hall Building Number 28	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.18	Mess Hall Building Number 29	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district

Table B-1. Results of the Office of Archaeology and Historic Preservation Search of the Colorado Inventory of Cultural Resources within the Camp George West Historic District

Resource ID	Resource Name	Resource Type	Resource Address	Eligibility Status
5JF.145.19	Quartermaster Supply Building Building Number 30	Historic	15000 S. Golden Rd., Golden	Contributes to NR district Field not eligible
5JF.145.2	Mess Hall Building Number 12	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.20	Small Arms Ammunition Storage Building Number 33	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.21	Magazine Building Number 34	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.22	Storage Fire Station Building Number 35	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.23	Officers Mess Hall Building Number 43	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.24	Headquarters Building Number 45	Historic	15000 S. Golden Rd., Golden	Field eligible Contributes to NR district
5JF.145.25	Latrine Building Number 46	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.26	Infirmary Building Number 47	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.27	Recreation Hall Building Number 48	Historic	15000 S. Golden Rd., Golden	Field eligible Contributes to NR district
5JF.145.28	Swimming Pool- Outdoor Structure Number 49	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.29	Pedestrian Underpass Structure Number 50	Historical Archaeology Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.3	Mess Hall Building Number 13	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district

Table B-1. Results of the Office of Archaeology and Historic Preservation Search of the Colorado Inventory of Cultural Resources within the Camp George West Historic District

Resource ID	Resource Name	Resource Type	Resource Address	Eligibility Status
5JF.145.30	Filling Station Building Number 51	Historic	15000 S. Golden Rd., Golden	Field eligible Contributes to NR district
5JF.145.31	Warehouse Building Number 52	Historic	15000 S. Golden Rd., Golden	Field eligible Contributes to NR district
5JF.145.32	Laundry Building Building Number 53	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.33	Latrine Building Number 54	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.34	Warehouse Building Number 55	Historic	15000 S. Golden Rd., Golden	Field eligible Contributes to NR district
5JF.145.35	Wagon Shed Building Number 58	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.36	Wagon Shed Building Number 59	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.37	Wagon Shed Building Number 60	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.38	Wagon Shed Building Number 61	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.39	Wagon Shed Building Number 62	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.4	Mess Hall Building Number 14	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.40	Water Tower-South Building Number 63	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.41	Gas And Oil Station Building Number 66	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.42	Officers' Clubhouse Building Number 67	Historic	15000 Golden Rd., Golden	Field eligible Contributes to NR district
5JF.145.43	Quarters Building Number 68	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district

Table B-1. Results of the Office of Archaeology and Historic Preservation Search of the Colorado Inventory of Cultural Resources within the Camp George West Historic District

Resource ID	Resource Name	Resource Type	Resource Address	Eligibility Status
5JF.145.44	Quarters Building Number 69	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.45	Quarters Building Number 70	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.46	Quarters Building Number 71	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.47	Garage Building Number 73	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.48	Garage Building Number 74	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.49	Garage Building Number 76	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.5	Mess Hall Building Number 15	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.50	Garage Building Number 77	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.51	Garage Building Number 81	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.52	Motor Vehicle Storage Building Number 82	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.53	Guard House Building Number 83	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.54	Pump House Building Number 84	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.55	Underground Reservoir Structure Number 90	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.56	Bridge Structure Number 92	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district

Table B-1. Results of the Office of Archaeology and Historic Preservation Search of the Colorado Inventory of Cultural Resources within the Camp George West Historic District

Resource ID	Resource Name	Resource Type	Resource Address	Eligibility Status
5JF.145.57	Orderly Room Building Number 96	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.58	Orderly Room Building Number 97	Historic	15000 S. Golden Rd., Golden	Field not eligible Noncontributing to NR district
5JF.145.59	Theater/Chapel Building Number 100	Historic	15000 S. Golden Rd., Golden	Field not eligible Noncontributing to NR district
5JF.145.6	Mess Hall Building Number 16	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.60	Gate House Building Number 102	Historic	15000 S. Golden Rd., Golden	Field not eligible Noncontributing to NR district
5JF.145.61	Golden Gun Club Clubhouse Building Number 104	Historic	15000 S. Golden Rd., Golden	Field not eligible Noncontributing to NR district
5JF.145.62	Bridge Structure Number 113	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.63	Inter-Mountain Railroad Station Building Number 116	Historic	15000 S. Golden Rd., Golden	Field eligible Contributes to NR district
5JF.145.64	Gates Stone Gates	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.65	Gate And Wall Stone Gate And Wall	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.66	Firing Lines Firing Pits Firing Range	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.67	Tent Pads Tent Encampment	Historical Archaeology	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.68	Tent Pads Tent Encampment	Historical Archaeology		Field not eligible Contributes to NR district

Table B-1. Results of the Office of Archaeology and Historic Preservation Search of the Colorado Inventory of Cultural Resources within the Camp George West Historic District

Resource ID	Resource Name	Resource Type	Resource Address	Eligibility Status
5JF.145.69	Tent Pads Tent Encampment	Historical Archaeology		Field not eligible Contributes to NR district
5JF.145.70	Tent City North (Camp George West)	Historical Archaeology		Field needs data
5JF.145.71		Historical Archaeology		No assessment given on form
5JF.145.7	Mess Hall Building Number 17	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.8	Mess Hall Building Number 18	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.145.9	Mess Hall Building Number 19	Historic	15000 S. Golden Rd., Golden	Field not eligible Contributes to NR district
5JF.165		Archaeological		Field not eligible
5JF.166		Archaeological		Field not eligible
5JF.167		Archaeological		Field not eligible
5JF.2410		Historical Archaeology		Field not eligible
5JF.2784	Albino Romano Residence	Historic	16300 S Golden Rd., Golden	Field eligible
5JF.2840		Historic	600 Kilmer St., Golden	Officially not eligible Field not eligible
5JF.2841		Historic	609 Lupine St., Golden	Officially not eligible Field not eligible
5JF.2842		Historic	615 Kendrick St., Golden	Officially not eligible Field not eligible
5JF.2843		Historic	620 Kendrick St., Golden	Officially not eligible Field not eligible
5JF.2844		Historic	625 Juniper St., Golden	Officially not eligible Field not eligible

Table B-1. Results of the Office of Archaeology and Historic Preservation Search of the Colorado Inventory of Cultural Resources within the Camp George West Historic District

Resource ID	Resource Name	Resource Type	Resource Address	Eligibility Status
5JF.2845		Historic	612 Juniper St., Golden	Officially not eligible
5JF.2846		Historic	635 Joyce St., Golden	106 - Officially eligible Field eligible
5JF.2847		Historic	640 Joyce St., Golden	Officially not eligible Field not eligible
5JF.2848		Historic	645 Isabell St., Golden	Officially not eligible Field not eligible
5JF.401	Golden Cemetery	Historic Historical Archaeology	Golden	106 - Officially eligible Field eligible
5JF.817.6	Denver And Intermountain Railroad - Segment	Historical Archaeology Historic		Officially not eligible Noncontributing to NR district Field not eligible
5JF.839	South Table Mountain Basalt Quarries	Historical Archaeology		Field needs data
5JF.842	Colorado Amphitheater Structure #41	Historic	15001 Denver West Pkwy., Golden	Listed on National Register Multiple Resource Component Within NR district Contrib. to Officially elig. dist.
5JF.843	Ammunition Igloo Building 88 Storage Bunker	Historic	15001 Denver West Pkwy., Golden	Listed on National Register Within NR district Multiple Resource Component Field eligible
5JF.846	Bridge Structure Number 91	Historical Archaeology Historic	15000 S. Golden Rd., Golden	Field not eligible

Table B-1. Results of the Office of Archaeology and Historic Preservation Search of the Colorado Inventory of Cultural Resources within the Camp George West Historic District

Resource	Resource	Resource	Resource	Eligibility
ID	Name	Type	Address	Status
5JF.848.1	Golden Canal	Historical	15000 S. Golden	Officially not eligible
	Segment	Archaeology	Rd., Golden	Noncontrib. to Officially
	Welch Irrigation Ditch	Historic		elig. Dist Field not eligible Field eligible



#### Department of Energy

Golden Field Office 1617 Cole Boulevard Golden, Colorado 80401 3393

August 17, 2009

Mr. Terry McKee U.S. Army Corps of Engineers Denver Regulatory Office 9307 South Wadsworth Blvd. Littleton, CO 80128-6901

Dear Mr. McKee.

SUBJECT: Lena Gulch wetland delineation review request relevant to the National

Renewable Energy Laboratory Supplemental Environmental Assessment

for the South Table Mountain Facility

With this letter, the Department of Energy (DOE) requests that the U.S. Army Corps of Engineers (USACE) review the wetland delineation shown on the attached figure in the vicinity of Lena Gulch and determine that it is accurate and acceptable to your office.

The delineated wetlands fall within possible areas of impact associated with potential alignments of proposed access to DOE's National Renewable Energy Laboratory (NREL) South Table Mountain (STM) facility. The capacity of Denver West Parkway is a limiting factor to site development. Consequently, second full-service site access is being investigated and an Environmental Assessment (EA) is underway per the requirements of the National Environmental Policy Act (NEPA). As the various alignments being considered in the EA have the potential to impact wetlands and waters of the U.S., approval of the delineated extent of wetlands and waters of the U.S. under the jurisdiction of the USACE is needed.

The potential road alignments being considered in the EA are located in the NE1/4 of Section 1, Township 4S, Range 70W, within Jefferson County. The nearest major intersection is I-70 and Highway U.S. 40. (Please see Figure 1). Driving directions from the USACE offices in Littleton are as follows:

Take C-470 West to I-70E
Take W. Colfax Ave/US40 Exit 262
Follow W. Colfax Avenue to turn (at light) for South Golden Road
Follow South Golden Road (veers to west/left) to Kilmer Street
Turn north/right on Kilmer Street
Follow Kilmer into Pleasant View Community Park parking lot



The delineated wetland boundaries as well as channels and ditches within the area being evaluated for the EA are shown in the attached exhibit. The completed data sheets from Great Plains Region Supplement are also attached. At this time, it is not possible to provide a quantification of the area of impact or of the volume of dredge or fill materials to be placed in wetlands or below the ordinary high mark of waters of the U.S. as a final road alignment has not been determined.

We appreciate your review of the attached wetland delineation and assessment of possible jurisdictional waters and look forward to your response. Please contact Tom Ryon at 303-275-3252 or Genny Braus at 303-275-3251 with NREL Environment, Health and Safety with any questions you might have.

Sincerely,

Steve Blazek

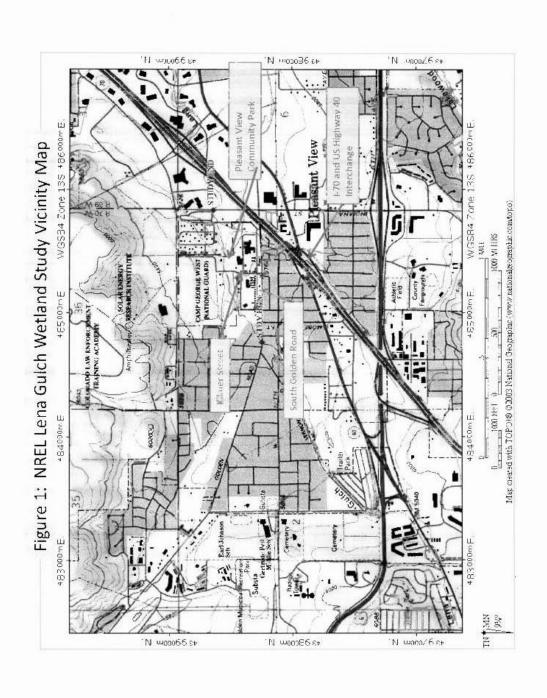
NEPA Compliance Officer

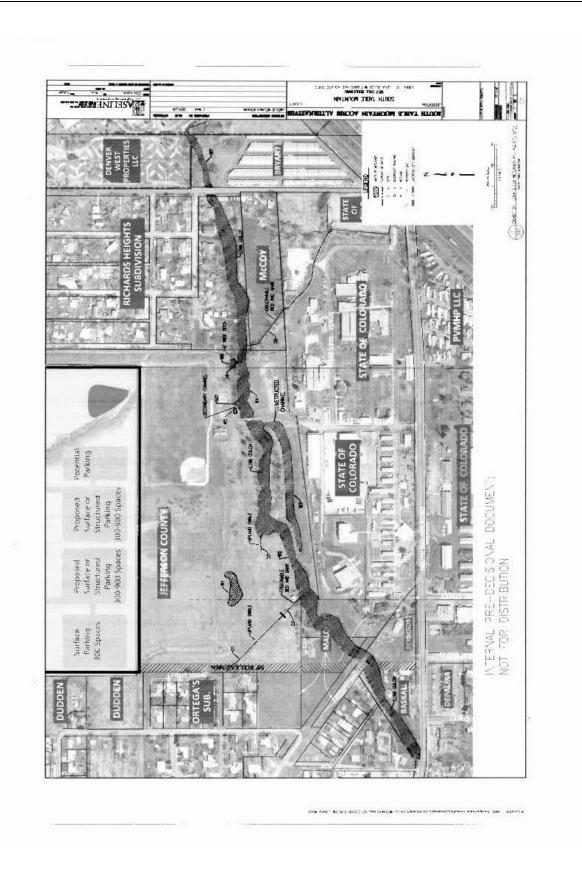
Attachments

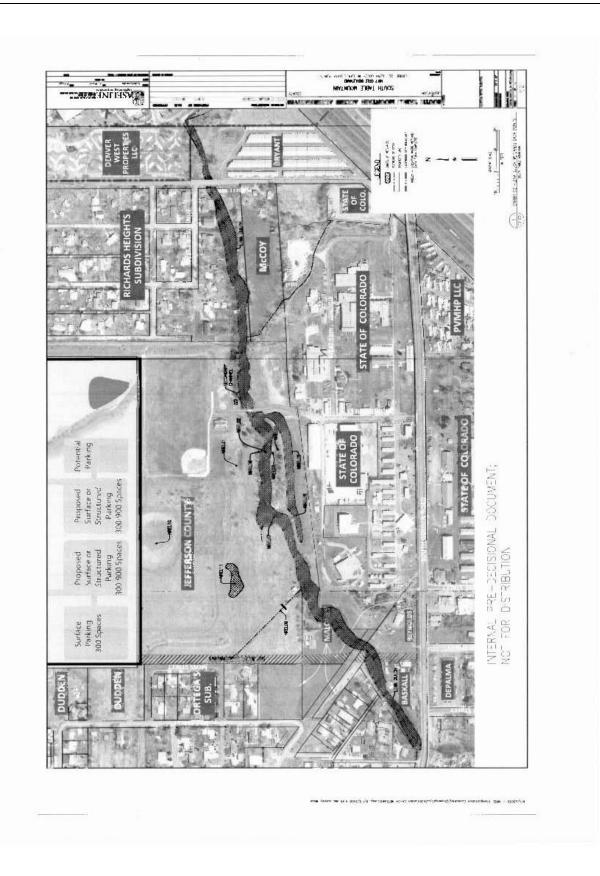
ce: Chris Carusona, DOE GO John Eickhoff – NREL, EHS Genevieve Braus NREL, EHS

Tom Ryon – NREL, EHS Tom Anderson PNL Christine Ross PNL

Daniel Lowery - PNL







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er <u>b Stratum</u> (Plot size:	00	4	NL	FACU species x 5 =
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Lobillaria meritina	I	_1/	NL	Dominance Test is >50%     Prevalence index is \$3.0°
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- Agropyron Smithi	10		FACU	detaur. Remarks or colla separate sheet)
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body Vine Sharum (Plot size: )			01	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
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SOIL			Sampling Point NREL-01
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Histic Epipedon (A2) Black Histic (A3)	T Stripped Matrix (56)		rane Recox (Ale) (LRR F, G, H)
Hydrogen Sulfide (A4)	Loamy Mucky Mineral (F1)		ens Depressions (F16)
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1 em Muck (A9) (LRR F, G, H)	Deploted Matrix (F3)		EVertic (FFB) ent Malerial (TF2)
Depleted Below Dark Surface (A11) Thick Dark Surface (A12)	Redox Dark Surface (F6) Depleted Dark Surface (F7)	100 00 00 00 00 00 00 00 00 00 00 00 00	ent Material (1+2) ixolatin in Remarks)
Sandy Mucky Mineral (S1)	Redux Depressions (F8)		hydrophytic vegetation and
2.5 cm Mucky Pent ni Petit (S2) (LRR 0	F, H) Fligh Plains Depressions (F16)		hydrology must be present,
5 cm Mucky Post or Post (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	Unless d	isturbed or problematic
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	<del></del> -		N 7
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IYDROLOGY  Wettand Hydrology Indicators:  Phimary Indigators (minimum of one reduline)  M. Surface Weter (A1)  High Water Tahle (A2)  Saluration (A3)  Water Merks (B1)  Sed ment Ceposits (B2)  Drift Deposits (B3)	M Salt Crust (B11) Aquatio invertebrates (B12) Hydrogen Sulfide Occi (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Rool (where not tilled)	Secondary  Y Surfact  Scers  Oraline  Oxobia  (Wa)  Crayfe	Inglegators (minimum of two required) te Soil Cracks (B8) ely Vegotaled Concave Surface (B8) tego Patterns (B: 0) ted Rhizospheres on Living Roots (C3) tere tilled) sh Burrows (C6)
Permarks:  IYDROLOGY  Wettand Hydrology Indicators:  Permary Indigetors (raminism of one reduited of the control of the contro		Secondary   Surfac  Scers  Oxidia  (Ma)  Cray  Satura	Inglegators (institution of two required) te Soil Cracks (B6) ely Vegetated Concava Surface (B8) ege Paticens (B10) ted Rhazospheres on Living Roots (C3) ere filled) sh Burrows (C6) et on Vésible on Aerrel linegery (C9)
PERMICHS:  Wetland Hydrology Indicators:  Perminy Indigetors (minimum of one redulier  Surface Weter (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sed ment Caposits (B2)  Drift Deposits (B3)  Algal Met or Crust (B4)  Iron Deposits (B5)	M Salt Crust (B11) Aquatic invertebrates (B12) Hydrogen Sulfide Octo (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roof (where not tilled) Presence of Reduced Zon (C4) Thin Mack Surface (C7)	Secondary  A Surfac  A Scers  Oraline  Oxidiz  5 (C3) (wh  Satura  Ceom	Ingligators (inhiminum of two required) te Soil Cracks (B8) ely Vegetated Concave Surface (B8) tige Patterns (B10) ted Rhizospheres on Living Roots (C3) ten tilled) than Valub an Aerrel Imagery (C9) toppide Poshon (U2)
Permarks:  IYDROLOGY  Wettand Hydrology Indicators:  Permary Indigetors (raminism of one reduited of the control of the contro	M Salt Crust (B11) Aquatic invertebrates (B12) Hydrogen Sulfide Octo (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roof (where not tilled) Presence of Reduced Zon (C4) Thin Mack Surface (C7)	Secondery	Inglegators (institution of two required) te Soil Cracks (B6) ely Vegetated Concava Surface (B8) ege Paticens (B10) ted Rhazospheres on Living Roots (C3) ere filled) sh Burrows (C6) et on Vésible on Aerrel linegery (C9)
Remarks:  IYDROLOGY  Wettand Hydrology Indicators:  Phimary Legiptors (minimum of one redulinar  M. Surface Weter (A1)  High Water Tahle (A2)  Saturation (A3)  Water Marks (B1)  Sed ment Ceposits (B2)  Drift Deposits (B3)  Algal Met or Crust (B4)  Iron Deposits (B5)  Intuitation Visible on Achail Imagery (B7)  Water-Stained Leaves (R6)	Misalt Crust (B11) Aquatio invertensites (B12) Hydrogen Sulfide Occi (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Rool (where not tilled) Presence of Reduced For (C4) Thin Mack Surface (C7) Other (Exprein in Remarks)	Secondery	Indicators finiminum of two required) in Soil Cracks (B8) is Soil Cracks (B8) isgo Patterns (B10) isdo Rhizospheres on Living Roots (C3) inter tilled) sh Burrows (C6) it on Whible on Aeriel Imagery (C9) orphic Position (U2) Peutral Tost (D5)
Permarks:  IYDROLOGY  Wetland Hydrology Indicators:  Pinnary Indigators (minimum of one required  Mariana Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sed ment Deposits (B2)  Drift Deposits (B3)  Algal Met or Crust (B4)  Iron Deposits (B3)  Indication Visible on Achail Imagery (B7)  Water-Stained Leaves (B5)	Salt Crust (B11)  Aquatic invertebrates (B12) Hydrogen Sulfide Octr (C1) Dhy-Season Water Table (C2) Oxid Sed Rhizospheres on Living Roof (where not tilled) Presence of Reduced For (C4) Thin Mack Surface (C7) Other (Explain in Remarks)	Secondery	Indicators finiminum of two required) in Soil Cracks (B8) is Soil Cracks (B8) isgo Patterns (B10) isdo Rhizospheres on Living Roots (C3) inter tilled) sh Burrows (C6) it on Whible on Aeriel Imagery (C9) orphic Position (U2) Peutral Tost (D5)
PEROLOGY  Wetland Hydrology Indicators:  Penney Indigetors (rammam of one redulier  Surface Weter (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sed ment Caposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Intuidation Visible on Achal Imagery (B7)  Water Stained Leaves (B5)  Field Observations:  Surface Water Present?  Ves	Agraho invertebrates (B12) Hydroger Sulfide Ocor (C1) Dhy-Season Water Table (C2) Oxid Sed Rhizospheres on Living Rool (where not tilled) Presence of Reduced For (C4) Thin Mack Surface (C7) Other (Explain in Remarks)	Secondary  Surfact  Scers  Oraline  (wh)  Crayf  Satura  Geom  FAC-N	Inglegators (minimum of two required) te Soil Cracks (B8) ely Vegetated Concave Surface (B8) ted Rhizospheres on Living Roots (C3) ted Rhizospheres on Living Roots (C3) ten tilled) sh Burrows (C6) than Visible on Aeriel Imagery (C9) orphic Position (U2) ceutral Tost (D5) theave Hummocks (D7) (LRR F)
Remarks:  IYDROLOGY  Wetland Hydrology Indicators:  Pennary Leggators (ranning) of one reculled Assistance (Ad)  High Water Table (A2)  Saturation (A3)  Vater Marks (B1)  Sed ment Caposits (B2)  Drift Deposits (B3)  Algal Met or Crust (B4)  Iron Deposits (B5)  Inundation Visible on Ashall megory (B7)  Water Stained Leaves (B5)  Field Observations:  Suitace Water Present?  Vater Table Present?  Yes	Agraho invertebrates (B12) Hydroger Sulfide Ocor (C1) Dhy-Season Water Table (C2) Oxid Sed Rhizospheres on Living Rool (where not tilled) Presence of Reduced For (C4) Thin Mack Surface (C7) Other (Explain in Remarks)	Secondary  Surfact  Scers  Oraline  (wh)  Crayf  Satura  Geom  FAC-N	Inglegators (minimum of two required) te Soil Cracks (B8) ely Vegetated Concave Surface (B8) ted Rhizospheres on Living Roots (C3) ted Rhizospheres on Living Roots (C3) ten tilled) sh Burrows (C6) than Visible on Aeriel Imagery (C9) orphic Position (U2) ceutral Tost (D5) theave Hummocks (D7) (LRR F)
Pernanks:  IYDROLOGY  Wettand Hydrology Indicators:  Pernany Indigators (manifications:  Pernany Indigators (manifications:  Watrace Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sed ment Deposits (B3)  Algal Met or (Chus (H4)  Iron Deposits (B3)  Intuitation Visible on Ashall triegery (B7)  Water-Stained Leaves (R5)  Field Observations:  Surface Water Present?  Water Table Present?  Water Table Present?  Yes 1  Saturation Present?  Yes 2  Includios capillary finge)	# Sall Crust (811)  Aquation invertenates (812)  Hydrogen Sulfide Occi (C1)  Dry-Season Water Table (02)  Oxidized Rhizospheres on Living Rool  (where not tilled)  Presence of Reduced Iron (C4)  Thin Mack Surface (C7)  Other (Express in Femarks)	Secondary  // Surfact // Surfact // Surfact // Surfact // Surfact // Oxidiz // Oxidiz // Surfact //	Inglegators (minimum of two required) te Soil Cracks (B8) ely Vegetated Concave Surface (B8) ted Rhizospheres on Living Roots (C3) ted Rhizospheres on Living Roots (C3) ten tilled) sh Burrows (C6) than Visible on Aeriel Imagery (C9) orphic Position (U2) ceutral Tost (D5) theave Hummocks (D7) (LRR F)
Pernanks:  IYDROLOGY  Wettand Hydrology Indicators:  Pernany Indigators (manifications:  Pernany Indigators (manifications:  Watrace Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sed ment Deposits (B3)  Algal Met or (Chus (H4)  Iron Deposits (B3)  Intuitation Visible on Ashall triegery (B7)  Water-Stained Leaves (R5)  Field Observations:  Surface Water Present?  Water Table Present?  Water Table Present?  Yes 1  Saturation Present?  Yes 2  Includios capillary finge)	Agraho invertebrates (B12) Hydroger Sulfide Ocor (C1) Dhy-Season Water Table (C2) Oxid Sed Rhizospheres on Living Rool (where not tilled) Presence of Reduced For (C4) Thin Mack Surface (C7) Other (Explain in Remarks)	Secondary  // Surfact // Surfact // Surfact // Surfact // Surfact // Oxidiz // Oxidiz // Surfact //	Inglegators (minimum of two required) te Soil Cracks (B8) ely Vegetated Concave Surface (B8) ted Rhizospheres on Living Roots (C3) ted Rhizospheres on Living Roots (C3) ten tilled) sh Burrows (C6) than Visible on Aeriel Imagery (C9) orphic Position (U2) ceutral Tost (D5) theave Hummocks (D7) (LRR F)
Remarks:  IYDROLOGY  Wetland Hydrology Indicators:  Permary Indigetors (reminism of one reduller Moral Section 1997)  Saturation (A1)  High Water Table (A2)  Saturation (A3)  Vator Merks (B1)  Sed ment Deposits (B3)  Algal Met or Crust (B4)  Iron Deposits (B3)  Algal Met or Crust (B4)  Iron Deposits (B6)  Water-Stained Leaves (B6)  Field Observations:  Suiface Water Present? Yes 1  Saturation Present? Yes 1  Saturation Present? Yes 1  Saturation Present? Yes 2  Setting Moral Section 1998  Describe Recorded Data (stream gaugo, mo	# Sall Crust (811)  Aquation invertenates (812)  Hydrogen Sulfide Occi (C1)  Dry-Season Water Table (02)  Oxidized Rhizospheres on Living Rool  (where not tilled)  Presence of Reduced Iron (C4)  Thin Mack Surface (C7)  Other (Express in Femarks)	Secondary  // Surfact // Surfact // Surfact // Surfact // Surfact // Oxidiz // Oxidiz // Surfact //	Inglegators (minimum of two required) te Soil Cracks (B8) ely Vegetated Concave Surface (B8) ted Rhizospheres on Living Roots (C3) ted Rhizospheres on Living Roots (C3) ten tilled) sh Burrows (C6) than Visible on Aeriel Imagery (C9) orphic Position (U2) ceutral Tost (D5) theave Hummocks (D7) (LRR F)
Pernanks:  IYDROLOGY  Wettand Hydrology Indicators:  Pernany Indigators (manifications:  Pernany Indigators (manifications:  Watrace Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sed ment Deposits (B3)  Algal Met or (Chus (H4)  Iron Deposits (B3)  Intuitation Visible on Ashall triegery (B7)  Water-Stained Leaves (R5)  Field Observations:  Surface Water Present?  Water Table Present?  Water Table Present?  Yes 1  Saturation Present?  Yes 2  Includios capillary finge)	# Sall Crust (811)  Aquation invertenates (812)  Hydrogen Sulfide Occi (C1)  Dry-Season Water Table (02)  Oxidized Rhizospheres on Living Rool  (where not tilled)  Presence of Reduced Iron (C4)  Thin Mack Surface (C7)  Other (Express in Femarks)	Secondary  // Surfact // Surfact // Surfact // Surfact // Surfact // Oxidiz // Oxidiz // Surfact //	Inglegators (minimum of two required) te Soil Cracks (B8) ely Vegetated Concave Surface (B8) ted Rhizospheres on Living Roots (C3) ted Rhizospheres on Living Roots (C3) ten tilled) sh Burrows (C6) than Visible on Aeriel Imagery (C9) orphic Position (U2) ceutral Tost (D5) theave Hummocks (D7) (LRR F)
Remarks:  IYDROLOGY  Wetland Hydrology Indicators:  Permary Indigetors (reminism of one reduller Moral Section 1997)  Saturation (A1)  High Water Table (A2)  Saturation (A3)  Vator Merks (B1)  Sed ment Deposits (B3)  Algal Met or Crust (B4)  Iron Deposits (B3)  Algal Met or Crust (B4)  Iron Deposits (B6)  Water-Stained Leaves (B6)  Field Observations:  Suiface Water Present? Yes 1  Saturation Present? Yes 1  Saturation Present? Yes 1  Saturation Present? Yes 2  Setting Moral Section 1998  Describe Recorded Data (stream gaugo, mo	# Sall Crust (811)  Aquation invertenates (812)  Hydrogen Sulfide Occi (C1)  Dry-Season Water Table (02)  Oxidized Rhizospheres on Living Rool  (where not tilled)  Presence of Reduced Iron (C4)  Thin Mack Surface (C7)  Other (Express in Femarks)	Secondary  // Surfact // Surfact // Surfact // Surfact // Surfact // Oxidiz // Oxidiz // Surfact //	Inglegators (minimum of two required) te Soil Cracks (B8) ely Vegetated Concave Surface (B8) ted Rhizospheres on Living Roots (C3) ted Rhizospheres on Living Roots (C3) ten tilled) sh Burrows (C6) than Visible on Aeriel Imagery (C9) orphic Position (U2) ceutral Tost (D5) theave Hummocks (D7) (LRR F)
Remarks:  IYDROLOGY  Wetland Hydrology Indicators:  Permary Indigetors (reminism of one reduller Moral Section 1997)  Saturation (A1)  High Water Table (A2)  Saturation (A3)  Vator Merks (B1)  Sed ment Deposits (B3)  Algal Met or Crust (B4)  Iron Deposits (B3)  Algal Met or Crust (B4)  Iron Deposits (B6)  Water-Stained Leaves (B6)  Field Observations:  Suiface Water Present? Yes 1  Saturation Present? Yes 1  Saturation Present? Yes 1  Saturation Present? Yes 2  Setting Moral Section 1998  Describe Recorded Data (stream gaugo, mo	# Sall Crust (811)  Aquation invertenates (812)  Hydrogen Sulfide Occi (C1)  Dry-Season Water Table (02)  Oxidized Rhizospheres on Living Rool  (where not tilled)  Presence of Reduced Iron (C4)  Thin Mack Surface (C7)  Other (Express in Femarks)	Secondary  // Surfact // Surfact // Surfact // Surfact // Surfact // Oxidiz // Oxidiz // Surfact //	Inglegators (minimum of two required) te Soil Cracks (B8) ely Vegetated Concave Surface (B8) ted Rhizospheres on Living Roots (C3) ted Rhizospheres on Living Roots (C3) ten tilled) sh Burrows (C6) than Visible on Aeriel Imagery (C9) orphic Position (U2) ceutral Tost (D5) theave Hummocks (D7) (LRR F)
Remarks:  IYDROLOGY  Wetland Hydrology Indicators:  Permary Indigetors (reminism of one reduller Moral Section 1997)  Saturation (A1)  High Water Table (A2)  Saturation (A3)  Vator Merks (B1)  Sed ment Deposits (B3)  Algal Met or Crust (B4)  Iron Deposits (B3)  Algal Met or Crust (B4)  Iron Deposits (B6)  Water-Stained Leaves (B6)  Field Observations:  Suiface Water Present? Yes 1  Saturation Present? Yes 1  Saturation Present? Yes 1  Saturation Present? Yes 2  Setting Moral Section 1998  Describe Recorded Data (stream gaugo, mo	# Sall Crust (811)  Aquation invertenates (812)  Hydrogen Sulfide Occi (C1)  Dry-Season Water Table (02)  Oxidized Rhizospheres on Living Rool  (where not tilled)  Presence of Reduced Iron (C4)  Thin Mack Surface (C7)  Other (Express in Femarks)	Secondary  // Surfact // Surfact // Surfact // Surfact // Surfact // Oxidiz // Oxidiz // Surfact //	Inglegators (minimum of two required) te Soil Cracks (B8) ely Vegetated Concave Surface (B8) ted Rhizospheres on Living Roots (C3) ted Rhizospheres on Living Roots (C3) ten tilled) sh Burrows (C6) than Visible on Aeriel Imagery (C9) orphic Position (U2) ceutral Tost (D5) theave Hummocks (D7) (LRR F)

jed/Site Lena Gulch/SEA=	F STM city/County. Go	(den. Jefferson Sampling Date: 7/28)
		State CO_ Sampling Point NREL-
A Real Office	July 05 mm = man =	ange Sec DINE, TO45, R 700
		convex none): 627 cque Sope (%)
pregion (LRR): G( Western Great Pleias		L Long 105, (725 °W Datum: NAD 8
Mad Unit Name Englewood Urb	en hand Comple	NVVI classification;
climate / hydrologic conditions on the site typical for t	his time of year? Yes 📉 No.	(It no, explan in Remarks.)
Vegetation N Soil N or Hydrology N	significantly disturbed? Are	Normal Circumstances" present? Yes X No
		needed, explain any answers in Remarks )
IMIMARY OF FINDINGS - Attach site map	showing sampling point	locations, transects, important features, et
ydrophytic Vegetulion Present? Yes X	No.	
5명() (J. 1985 - 1987 -	No. 18 the Sampling	N
/etland Hydrology Present*/ Yes 💢	Within a Well	onc? Yes No
amerike:		
High Precip Year		
test pit next 5	tream Erel	
GETATION – Use scientific names of pla	nts.	
15-7	Absclute Dominant Indicator	Dominance Test worksheet:
ee Stratum (Plot size: /5)	% Cover Species? Status	Number of Company Species
Fraxinus americana	10 N FACE	
Elargonus anguertel	4 2 N FAC	(exchiding FAC+):
Papulas delthides	10 N FAC-	Fotof Number of Dominant
Salix amyadoloides	60 Y FACW	Species Across Alf Strata
	52 - Total Cover	Percent of Dominant Species
polic q/Shrub Stratum (Plot size) / 5	Name 200	That Are OBL, FACW or FAC: 50 (A/8)
traxious americana	_ 3 Y FACW	Prevulence Indox worksheet:
		Luter A Const. ot
		CBL spices x 1 =
		FACW species X Z =
F'	3 = 1otal Cover	FAC species x3 =
erb Stratum (Plot size:	- 2 V 4	FACU species x 4 =
Agrapy con repens	30 Y FAC	UPL species
FOR FIG TEASIS	- 5 N EACH	Column Totals: (A) (B)
Thelevis erundinger	5 N FACW	Prevalence Index = B/A =
Hg-05T'S 9164	5 N Efew	Hydrophytic Vagetation Indicators:
Carsien Gryther		✓ Cominance Test is >50%
Cynoplassem officinale	3 N NO	Frevalence Index is 53 0
MUMER CLISPUS	T N FACE	Marphological Adaptations! [Provide supporting
Negeto cutaria	TN FACE	data in Remarks or on a separate sheet)
Didnus inernus	40 Y NL	N Problematic Hydrophylic Vegetation* (Explain)
_ Dactules alonerary	10 N FACE	
		Indicators of hydric sull and wetland hydrology must
gody Vune Stretum (Plot size:)		be present, unless disturbed or problematic.
tathenocistus quisquetoliu	3 Y FAC	
		Hydrophytic Vegetation
	= Tota! Cover	Present? Yes No No
Bare Ground in Herb Stratum		

SOIL		Sampling Point NREL - 02
Profile Description; (Describe to the de	opth needed to document the indicator or cont	
Depth Mates	Rodov Foothirus	516
(inches) Color (maist) %	Color (mg/s): 36 Trate Los	Texture Remarks
0-10 10YR 3/3 100		545
10-22 10783/3 85	2.5/R4/8 15 C m	CSR + C+ Coarse Send and
22-27 N 2.5/6/4/100		Site Glevil Dave
THE WASTERLAND		3121 G4 5 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	·	
	, a comment of the first	40
		7.07 - 1.02 - MATEUR 1
		Grains. *Location: PL-Pore cloing, M=Matrix.
Hydric Soil indicators: (Applicable to a	N = 0.531	Indicators for Problematic Hydric Soits <sup>3</sup> :
N Histosol (A1)	Sandy Gleyec Matrix (S4)	t cm Muck (A9) (LRR I, J)
+ thetic Epipedon (AZ)  Black Histic (AS)	Y Sundy Redox (S5)  A) Stripped Matrix (S6)	Coest Praine Redox (A16) (LRR F, G, H) Dark Surface (S7) (LRR G)
Flydregen Sulfide (A4)	L namy Munky Mineral (F1)	High Plains Depressions (£16)
Stratified Layers (A5) (LRR E)	I Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
t cm Muck (AS) (LRR F, G, H)	Deplated Matrix (F3)	Reduced Vertic (F18)
Depleted Bolow Dark Surface (Ar 1)	Redox Bark Surface (F6)	L Red Parent Material (TF2)
Thick Dark Stirfane (A12)	→ Depleted Dark Surface (F7)	Other (Explain in Remarks)
	E.G. H) Figh Plains Depressions (FB)	Indicators of hydrophytic vegetation and webland hydrology must be present.
5 cm Mocky Peat of Peat (S3) (LRR F		unless disturbed or problematic.
Restrictive Layer (II present).		
Type: NA-		9.8
Depth (inches):		Hydric Soil Present? Yes X No
DOM: 1	Soil with mottles	with 12" of restaured
glay much	Soil with mottles	with 12" of reflected
glay wack	The second secon	with 12" of reflected
glay muck YDROLOGY Walland Hydrology Indicators:	UT COTTO (24")	
9 (Gy whick YDROLOGY Welland Hydrology Indicators: Primary Indicators (minimum of one require	017 60770 - (24")	Socondary indicates a nineram of two requires:
Glay whick  YDROLOGY  Welland Hydrology Indicators:  Primary Indicators / reinmum of one require  N. Surface Water (A1)	ed: zhesk all linat grafy)  N Salt Crusi (B11)	Secondary indicates (minimum of two required)  **V_Surface Soil Cranks (96)
YDROLOGY  Welland Hydrology Indicators:  Primary Indicators / minimum of one require  M. Surface Water (A1)  M. High Water Table (A2)	ed = (24")  ed ahask ill linat epy(y)  N Salt Crusi (B11)  N Aquatic invertebrates (B13)	Secondary industrial (minimum of two required)  V Surface Soil Cracks (A6)  V-Sparsely Vogetated Concave Surface (B8)
YBROLOGY  Welland Hydrology Indicators:  Primary Indicators (minimum of one required Martine Water (A1)  High Water Table (A2)  Sultration (A3)	ed ahaak oli lihat gp(y)  N Salt Crust (B11)  A Aquatic invertebrates (B13)  Hydrogen Sulfide Oran (C1)	Secondary indicators (minimum of two required)  **V Surface Soil Cracks (98)  **V Spersally Vegetated Concave Surface (38)  **V Drainage Patterns (B10)
YEROLOGY Welland Hydrology Indicators: Primary Indicators (minimum of one required Marriage Water (A1)  M. Sudrace Water (A2) M. Sudrallon (A3) M. Water Marks (B1)	ed to the sk oil that eps(y)  N Salt Crusi (B11)  N Aquetic invertebrates (B13)  Hydrogen Sulfule Oran (C1)  N Dry-Spason Weter Teble (C2)	Secondary indicators (minimum) of two required:  **V Surface Soil Cracks (A6)  **V Searsa y Vegetade Concave Surface (BR)  **Drainage Patterns (B10)  **Chiclized (Rhizospheros on Living Rooks (C3)
9 (4y www.k.k.)  YDROLOGY  Welland Hydrology Indicators:  Primary Indicators (minimum of one required)  A Sulfrace Water (A1)  A Sulfrace Water (A2)  A Sulfrace Mans (B1)  A Sodiment Deposits (B2)	ed to the sk all linat eps(y)  N Salt Crusi (B11)  N Aquatic invertebrates (B13)  N Hydrogen Sulfide Ordin (C1)  N Dry-Shastor Weter Table (C2)  Oxidized Phizospheres on Living Roof	Secondary indicators (minimum of two required)  **A Surface Soil Critick (R8)  **Sparse y Vegetade Concave Surface (3R)  **Training Patients (B10)  **Oxidized Rhizospheros on Living Rooks (C3)  **Is (C3)  **(where till ed)
YDROLOGY Welland Hydrology Indicators: Primary Indicators (reinfimum of one requise  ### Surface Water (A1) ### High Water Tetrie (A2) ### Water Marks (B1) ### Sodiment Deposits (B2) ### Deposits (B3)	ed to the sk oil that eps(y)  N Salt Crusi (B11)  N Aquetic invertebrates (B13)  Hydrogen Sulfide Oran (C1)  N Dry-Shason Weter Teble (C2)	Secondary indicators (minimum) of two required:  **V Surface Soil Cracks (A6)  **V Searsa y Vegetade Concave Surface (BR)  **Drainage Patterns (B10)  **Chiclized (Rhizospheros on Living Rooks (C3)
9 (4y www.k.k.)  YDROLOGY  Welland Hydrology Indicators:  Primary Indicators (minimum of one required)  A Sulfrace Water (A1)  A Sulfrace Water (A2)  A Sulfrace Mans (B1)  A Sodiment Deposits (B2)	ed; shock all linat gpg/y)  M Salt Crusi (B11)  M Aquetic invertebrates (B13)  M Hydrogen Sulfide Ordii (C1)  M Dry-Spason Water Table (C2)  Oxidized Rhizospheres on Living Root (where not tilled)	Secondary indicators (minimum at two required)  **A Surface Soil Gradus (B6)  **Sparse y Vegetated Concave Surface (BR)  **Dominage Patterns (B10)  **Cudized Rhizospheros on Living Rooks (C3)  **(where tilled)  **L' Craytish Burrows (C8)
YDROLOGY  Welland Hydrology Indicators:  Primary Indicators / Frimmum of one require  N Surface Water (A1)  High Water Tetile (A2)  N Suburation (A3)  N Water Marks (B1)  N Sediment Deposits (B2)  Y Diff Deposits (B3)  N Algal Mat or Crust (B4)	ed zheak oli lihat gp(y)  N Salt Crusi (B11)  Aquatic invertebrates (B13)  Hydrogen Sulfide Ordin (C1)  Dry-Spason Water Table (C2)  Oxidized Rhizospheres on Living Rood (where not filled)  N Presence of Reduced For (C4)  N Thin Mack Surface (C7)	Secondary indicators (minimum of two required)  **A Surface Soil Cripids (A6)  **A Sperse y Vegetated Concave Surface (38)  **Charanage Patterns (1410)  **Outdized Rhizospheros on Living Rooks (C3)  **(where till ed)  **Chaytish Burrows (C8)  **A Saturation Misible on Aerial Imagery (C9)  **Checked Testing (C9)  **AC-Noutral Test (C6)
y Gry Luck  Y DROLOGY  Welland Hydrology Indicators:  Primary Indicators (minimum of one requise  M. Surface Water Table (A2)  M. Suluration (A3)  M. Water Marks (B1)  M. Sediment Deposits (B2)  V. Diff Deposits (B3)  M. Algal Mat or Crust (B4)  M. Iron Deposits (B5)  M. Inundation Visible on Aena: Imagery (I  M. Water Stained Leaves (39)	ed zheak oli lihat gp(y)  N Salt Crusi (B11)  Aquatic invertebrates (B13)  Hydrogen Sulfide Ordin (C1)  Dry-Spason Water Table (C2)  Oxidized Rhizospheres on Living Rood (where not filled)  N Presence of Reduced For (C4)  N Thin Mack Surface (C7)	Secondary industrials (minimum of two required)  **V. Surface Soil Creats (88)  **V. Spersely Vegetated Concave Surface (38)  **Dissinage Patterns (110)  **Outdized Rhizospheros on tiving Roots (C3)  **(where till ed)  **V. Creyfish Burrows (C8)  **V. Saturation Visible on Aerial Imagery (C9)  **Geomorphic Position (D2)
YBROLOGY Welland Hydrology Indicators: Primary Indicators (minimum of one required Minimum (A1)  A Saluration (A3)  A Water Marks (B1)  Sodiment Deposits (B3)  A Joseph Deposits (B3)  A Joseph Deposits (B3)  A Joseph Deposits (B4)  Inundation Visible on Aeria: Irregary (Inundation Visible on Aeria: Irregary (In	ed: zhask all linat gpg/y)  N Salt Crusi (B11)  N Aquetic invertebrates (B13)  Hydrogen Sulfide Ordin (C1)  Oxidized Phizospheres on Living Rood (where not Illied)  N Presence of Reduced roll (C4)  N Thin Mack Oxford (C7)  Other (Explain in Remarks)	Secondary indicators (minimum of two required)  **A Surface Soil Cripids (A6)  **A Sperse y Vegetated Concave Surface (38)  **Charanage Patterns (1410)  **Outdized Rhizospheros on Living Rooks (C3)  **(where till ed)  **Chaytish Burrows (C8)  **A Saturation Misible on Aerial Imagery (C9)  **Checked Testing (C9)  **AC-Noutral Test (C6)
YDROLOGY Welland Hydrology Indicators: Primary Indicators (minimum of one required Marting Water (A1)  Militigh Water Tettle (A2)  Sultration (A3)  Militigh Water Marks (B1)  Sodiment Deposits (B2)  Militigh Deposits (B3)  Militigh Martin Crust (B4)  International Martin (B6)  International Martin (B6)  Militigh Martin Crust (B4)  International Martin (B6)  Militigh Martin Martin (B6)  Militigh Martin Martin (B6)  Militigh Martin Martin (B6)  Field Observations:  Surface Water Present?  Yes	od: zhask all linat ggg/y)  M Salt Crusi (B11)  M Aquetic invertebrates (B13)  H Hydrogen Sulfide Ordin (C1)  Dry-Spasmo Water Table (C2)  Oxidized Rhizospheres on Living Rood  (where not tilled)  M Presence of Reduced Froit (C4)  M Thin Mick Suffere (C7)  M Other (Explain is Remarks)	Secondary indicators (minimum of two required)  **A Surface Soil Cripids (A6)  **A Sperse y Vegetated Concave Surface (38)  **Charanage Patterns (1410)  **Outdized Rhizospheros on Living Rooks (C3)  **(where till ed)  **Chaytish Burrows (C8)  **A Saturation Misible on Aerial Imagery (C9)  **Checked Testing (C9)  **AC-Noutral Test (C6)
YBROLOGY Welland Hydrology Indicators: Primary Indicators (minimum of one requise Notice Water (A1) M. High Water Tetie (A2) M. Suluration (A3) M. Water Mans (B1) M. Sodiment Deposits (B2) M. Join Deposits (B3) M. Algal Mat or Crust (B4) M. Inundation Visible on Aeria: Imagery (IM) M. Water Steined Leaves (B9) Field Observations: Surface Water Present? M. Water Table Present? M. Ves. M.	od: zhask all linat grg/y)  M Salt Crusi (Bill)  M Aquetic invertebrates (Bill)  Hydrogen Sulfide Ordin (Ct)  Dry-Spason Water Table (C2)  Oxidized Rhizospheres on Living Rood  (where not tilled)  M Presence of Reduced roll (C4)  M Thin Mick Surface (C7)  M Other (Explain in Remarks)  No Depth (inches): 25 7	Secondary indicators (minimum of two required)  A Surface Soil Crinick (R6)  Sperse y Vegetated Concave Surface (3R)  Chicker (Rhizospheros on Living Rooks (C3)  (where tilled)  Creytish Burrows (C8)  A Saturation Visible on Aerial Imagery (C9)  Secondorphic Hosticon (U2)  FAC-Noutral Test (O5)  A Frost Heave Hummocks (U7) (LRR F)
YEROLOGY Welland Hydrology Indicators: Primary Indicators (minimum of one required Martin (A1)  M. Surface Water (A1)  M. High Water Tebie (A2)  M. Surface Water (A3)  M. Water Marks (B1)  M. Sodiment Deposits (B3)  M. Joric Deposits (B3)  M. Joric Deposits (B3)  M. Inundation Visible on Aeria: Irregery (IM)  M. Water Stained Leaves (B9)  Field Observations: Surface Water Present?  Water Table Present?  Water Table Present?  Water Table Present?  Water Stained Leaves (B9)  Saturation Present?	od: zhask all linat grg/y)  M Salt Crusi (Bill)  M Aquetic invertebrates (Bill)  Hydrogen Sulfide Ordin (Ct)  Dry-Spason Water Table (C2)  Oxidized Rhizospheres on Living Rood  (where not tilled)  M Presence of Reduced roll (C4)  M Thin Mick Surface (C7)  M Other (Explain in Remarks)  No Depth (inches): 25 7	Secondary indicators (minimum of two required)  **A Surface Soil Cripids (A6)  **A Sperse y Vegetated Concave Surface (38)  **Charanage Patterns (1410)  **Outdized Rhizospheros on Living Rooks (C3)  **(where till ed)  **Chaytish Burrows (C8)  **A Saturation Misible on Aerial Imagery (C9)  **Checked Testing (C9)  **AC-Noutral Test (C6)
YDROLOGY  Welland Hydrology Indicators:  Primary Indicators (minimum of one requise  M. Surface Water (A1)  M. High Water Table (A2)  M. Water Marks (B1)  M. Sediment Deposits (B2)  M. Joseph Deposits (B3)  M. Algal Mat or Crust (B4)  M. Iron Deposits (B5)  M. Inundation Visible on Aenar Imagery (I  M. Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Table Present?  Water Table Present?  Water Table Present?  Water Stained Leaves (B9)  Saturation Present?  Yes  Saturation Present?  Yes  Saturation Present?  Yes  Saturation Present?  Yes  Maler Table Present?  Yes  Saturation Present?  Yes  Maler Table Present?	od: zhask all linat grg/y)  M Salt Crusi (Bill)  M Aquetic invertebrates (Bill)  Hydrogen Sulfide Ordin (Ct)  Dry-Spason Water Table (C2)  Oxidized Rhizospheres on Living Rood  (where not tilled)  M Presence of Reduced roll (C4)  M Thin Mick Surface (C7)  M Other (Explain in Remarks)  No Depth (inches): 25 7	Secondary indicators (minimum) of two required:  A Surface Soil Critick (98)  Search y Vegetated Concave Surface (38)  Chainage Patterns (B10)  Chicked Rhizospheros on Living Rooks (C3)  (where till ed)  Chaytab Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Caeomorphic Hostiton (D2)  FAC-Notetal Test (C5)  Frost Heave Hummocks (D7) (LRR F)
YDROLOGY  Welland Hydrology Indicators:  Primary Indicators (minimum of one requise  M. Surface Water (A1)  M. High Water Table (A2)  M. Water Marks (B1)  M. Sediment Deposits (B2)  M. Joseph Deposits (B3)  M. Algal Mat or Crust (B4)  M. Iron Deposits (B5)  M. Inundation Visible on Aenar Imagery (I  M. Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Table Present?  Water Table Present?  Water Table Present?  Water Stained Leaves (B9)  Saturation Present?  Yes  Saturation Present?  Yes  Saturation Present?  Yes  Saturation Present?  Yes  Maler Table Present?  Yes  Saturation Present?  Yes  Maler Table Present?	ed: zhesk all linat eps/y)  N Salt Crusi (B11)  N Aquatic invertebrates (B13)  Hydrogen Sulfide Ordin (C1)  Dry-Shasto Wefer Table (C2)  Coxidized Phizospheres on Living Root (where not Illied)  N Presence of Perduant roll (C4)  M Thin Mick Oxfane (C7)  M Other (Explain in Remarks)  No Depth (inches)  No Depth (inches)  No Depth (inches)	Secondary indicators (minimum) of two required:  A Surface Soil Critick (98)  Search y Vegetated Concave Surface (38)  Chainage Patterns (B10)  Chicked Rhizospheros on Living Rooks (C3)  (where till ed)  Chaytab Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Caeomorphic Hostiton (D2)  FAC-Notetal Test (C5)  Frost Heave Hummocks (D7) (LRR F)
YDROLOGY  Welland Hydrology Indicators:  Primary Indicators (minimum of one requise M Surface Water (A1)  M High Water Table (A2)  M Water Marks (B1)  M Sodiment Deposits (B3)  M Jagal Mat or Crust (B4)  M Iron Deposits (B3)  M Jagal Mat or Crust (B4)  M Iron Deposits (B3)  M Magal Mat or Crust (B4)  M Iron Deposits (B3)  M Mater Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Table Present?  Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Stained Leaves (B9)  Describe Recorded Data (stream gauge, In	ed: zhask all linat eps/y)  N Salt Crusi (B11)  N Aquelic invertebrates (B13)  Hydrogen Sulfide Ordin (C1)  Ory-shasm Water Table (C2)  Coxidized Phizospheres on Living Roof (where not Illied)  N Presence of Reduced roll (C4)  M Thin Mick Oxfane (C7)  M Other (Explain in Remarks)  No Depth (inches): 25"  No Depth (inches): 25"  No Depth (inches): 25"  Water of the control of the	Secondary indicators (minimum) of two required:  A Surface Soil Critick (98)  Search y Vegetated Concave Surface (38)  Chainage Patterns (B10)  Chicked Rhizospheros on Living Rooks (C3)  (where till ed)  Chaytab Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Caeomorphic Hostiton (D2)  FAC-Notetal Test (C5)  Frost Heave Hummocks (D7) (LRR F)
YDROLOGY  Welland Hydrology Indicators:  Primary Indicators (minimum of one requise  M. Surface Water (A1)  M. High Water Table (A2)  M. Water Marks (B1)  M. Sediment Deposits (B2)  M. Joseph Deposits (B3)  M. Algal Mat or Crust (B4)  M. Iron Deposits (B5)  M. Inundation Visible on Aenar Imagery (I  M. Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Table Present?  Water Table Present?  Water Table Present?  Water Stained Leaves (B9)  Saturation Present?  Yes  Saturation Present?  Yes  Saturation Present?  Yes  Saturation Present?  Yes  Maler Table Present?  Yes  Saturation Present?  Yes  Maler Table Present?	ed: zhask all linat eps/y)  N Salt Crusi (B11)  N Aquelic invertebrates (B13)  Hydrogen Sulfide Ordin (C1)  Ory-shasm Water Table (C2)  Coxidized Phizospheres on Living Roof (where not Illied)  N Presence of Reduced roll (C4)  M Thin Mick Oxfane (C7)  M Other (Explain in Remarks)  No Depth (inches): 25"  No Depth (inches): 25"  No Depth (inches): 25"  Water of the control of the	Secondary indicators (minimum) of two required:  A Surface Soil Critick (98)  Search y Vegetated Concave Surface (38)  Chainage Patterns (B10)  Chicked Rhizospheros on Living Rooks (C3)  (where till ed)  Chaytab Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Caeomorphic Hostiton (D2)  FAC-Notetal Test (C5)  Frost Heave Hummocks (D7) (LRR F)
YDROLOGY  Welland Hydrology Indicators:  Primary Indicators (minimum of one requise M Surface Water (A1)  M High Water Table (A2)  M Water Marks (B1)  M Sodiment Deposits (B3)  M Jagal Mat or Crust (B4)  M Iron Deposits (B3)  M Jagal Mat or Crust (B4)  M Iron Deposits (B3)  M Magal Mat or Crust (B4)  M Iron Deposits (B3)  M Mater Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Table Present?  Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Stained Leaves (B9)  Describe Recorded Data (stream gauge, In	ed: zhask all linat eps/y)  N Salt Crusi (B11)  N Aquelic invertebrates (B13)  Hydrogen Sulfide Ordin (C1)  Ory-shasm Water Table (C2)  Coxidized Phizospheres on Living Roof (where not Illied)  N Presence of Reduced roll (C4)  M Thin Mick Oxfane (C7)  M Other (Explain in Remarks)  No Depth (inches): 25"  No Depth (inches): 25"  No Depth (inches): 25"  Water of the control of the	Secondary indicators (minimum) of two required:  A Surface Soil Critick (98)  Search y Vegetated Concave Surface (38)  Chainage Patterns (B10)  Chicked Rhizospheros on Living Rooks (C3)  (where till ed)  Chaytab Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Caeomorphic Hostiton (D2)  FAC-Notetal Test (C5)  Frost Heave Hummocks (D7) (LRR F)
YDROLOGY  Welland Hydrology Indicators:  Primary Indicators (minimum of one requise M Surface Water (A1)  M High Water Table (A2)  M Water Marks (B1)  M Sodiment Deposits (B3)  M Jagal Mat or Crust (B4)  M Iron Deposits (B3)  M Jagal Mat or Crust (B4)  M Iron Deposits (B3)  M Magal Mat or Crust (B4)  M Iron Deposits (B3)  M Mater Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Table Present?  Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Stained Leaves (B9)  Describe Recorded Data (stream gauge, In	ed: zhask all linat eps/y)  N Salt Crusi (B11)  N Aquelic invertebrates (B13)  Hydrogen Sulfide Ordin (C1)  Ory-shasm Water Table (C2)  Coxidized Phizospheres on Living Roof (where not Illied)  N Presence of Reduced roll (C4)  M Thin Mick Oxfane (C7)  M Other (Explain in Remarks)  No Depth (inches): 25"  No Depth (inches): 25"  No Depth (inches): 25"  Water of the control of the	Secondary indicators (minimum) of two required:  A Surface Soil Critick (98)  Search y Vegetated Concave Surface (38)  Chainage Patterns (B10)  Chicked Rhizospheros on Living Rooks (C3)  (where till ed)  Chaytab Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Caeomorphic Hostiton (D2)  FAC-Notetal Test (C5)  Frost Heave Hummocks (D7) (LRR F)
YDROLOGY  Welland Hydrology Indicators:  Primary Indicators (minimum of one requise M Surface Water (A1)  M High Water Table (A2)  M Water Marks (B1)  M Sodiment Deposits (B3)  M Jagal Mat or Crust (B4)  M Iron Deposits (B3)  M Jagal Mat or Crust (B4)  M Iron Deposits (B3)  M Magal Mat or Crust (B4)  M Iron Deposits (B3)  M Mater Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Table Present?  Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Stained Leaves (B9)  Field Observations:  Surface Water Present?  Water Stained Leaves (B9)  Describe Recorded Data (stream gauge, In	ed: zhask all linat eps/y)  N Salt Crusi (B11)  N Aquelic invertebrates (B13)  Hydrogen Sulfide Ordin (C1)  Ory-shasm Water Table (C2)  Coxidized Phizospheres on Living Roof (where not Illied)  N Presence of Reduced roll (C4)  M Thin Mick Oxfane (C7)  M Other (Explain in Remarks)  No Depth (inches): 25"  No Depth (inches): 25"  No Depth (inches): 25"  Water of the control of the	Secondary indicators (minimum) of two required:  A Surface Soil Critick (98)  Search y Vegetated Concave Surface (38)  Chainage Patterns (B10)  Chicked Rhizospheros on Living Rooks (C3)  (where till ed)  Chaytab Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Caeomorphic Hostiton (D2)  FAC-Notetal Test (C5)  Frost Heave Hummocks (D7) (LRR F)

/	ERMINATION DATA FORM	rolden, Jefferson sampling Date 7/28
		State. CO Samolino Point NREL
vestigator(s): Ryon, Braus, Beat	Section, Township	Range Sec 0/NE, T\$45, R70
notions (hillslope, terrage etc.) Terrace	Local relief (cenes	ave, convex, none;: _Convex Slope (%);
ioraulin (LRR). G. ( Western Great 1/44	5) Lat 39. 7363 A	V Long: -105,1724°W Dalum: NAD 8
i Man Unit Name. Fraglewood-125	ban Land Com	p/e x NWI classification:
e chimaire / hydrologic conditions on the site typical for		
e Vegetation <u>N</u> , Soit <u>N</u> , or Hydrology <u>N</u>	significantly disturbed?	Are "Normal Circumstances" present? Yes X No
e Vegetation N Soil N or Hydrotogy N		(If needed, explain any enswers in Remarks.)
JAMAN DV OF FINDINGS Attach sits ma		
UMIVIARY OF FINDINGS - Attach site ma	p snowing sampling pol	nt locations, transects, Important features, et
hydrophytic Vegetalion Present? Yes X	No.	U.SVB
Hydric Soil Present? Yes		
Vetland Hydrology Present? Yas	No X	BCHAILES 105 NO
Remarks: 11. / 2		- LU SAME CLASSE
High Precip Year		
94.6		
COTATION Has a ballet a serve of all		
GETATION – Use scientific names of pla		
ree Stratum (Plot size: 20').	Absolute Dominant Indicat % Cover Species? (Satu	
Populus deltoidies	20 Y FAC	C. That Are 2011 EACIS! ~ ECC
Frakings pennsylvanic		(#xcluding FAC-): (A)
Elecany 4 malistiful		Total Number of Dominant
		Species Across All Strata: (B)
	50 = total Cover	
aplian/Shrub Stratum (Plot size/)		Pericent of Dominant Spectes -75 (A/R)
Fraxinus senasylvani	Ly 3 L FAC	
		Prevalence Index Workshiret:
		Tetal % Cover of Mudiply by
		08L specify x1 =
		FACW species X2=
C !	= Total Cover	FAC speciesx3
enti Stretium (Platsize:	(2) V 11.	FACU species
Browns inernis	5 N FA	UPL species x 5 =
Elynus regions	- 3 N FACE	Column Totals: (A) (B)
- Dactylis glomeluta		Prayeler nu Index = B/A -
Xunyhium Strumsch	13 -5 A FAC	Hydrophytic Vegetation Indicators:
(A)		— Y_ Dominance Test is >50%
		— Prevalence Index is ≤3.0
	<del></del>	— Morphological Adaptetions i Provide supporting
		-   data in Remarks or on a separate sheet)
N K <del>arana a managa</del> ana <del>anaa a</del>		Problematic Hydrophysic Vegetation (Explain)
·	99	THE MANY OF COORSESSION OF THE CONTRACT OF THE
		Indicators of hydric sall and webland hydrology must
OCAY VIIIS SUBILIFIED FACE.		te present, unless disturbed or problematic.
CON Auto Stratiful (Linux asse)		Hydrophyles
COLY VIII STERIUM (MDI SIZE		Vogelation
CONVINCE SERIES	m = Trans Cover	
7	= Total Cover	Present? Yes No No
Bara Ground in Heth Stratum 2	Total Cover	
Bare Ground in Heth Stralum	= Tuta: Cover	

OIL		Sampling Point: NREL - C
Plofile Description: (Describe to the depth r	needed to document the Indicator or con	firm the absence of Indicators.)
Death Matrix	Redox Features	T to a Second
	Color (moist) 14 Npe Loc	Texture Romanks
0-20 10423/5		Jake Sand Loven
		* * * * * * * * * * * * * * * * * * * *
Type: C=Concentration, D=Dopiction, SM=Re	chiend Malrie, CS-Covered or Created Sept	o Grains . 2 ocation; P1=Pore Lining, M=Matrix
tydric Soil Indicators: (Applicable to all LRI		Indicators for Problematic Hydric Solis":
N Histosof (A1)	Sandy Ginyell Matrix (G4)	1 nm Mack (A9) (LRR I, J)
j 18 stic Epipedon (A2)	→ Sandy Redox (S5)	Coast Praina Redox (A16) (LRR F, G, H)
_ Black Histic (A3)	Str.pped Matrix (S6)	Dark Surface (SV) (LRR G)
Hydrogen Sulfide (A4)	↓ Loamy Mucky Mineral (F1)	+ 14gh Plains Depressions (F16)
Stratified Layers (A5) (LRR F)  1 cm Muck (A9) (LRR F, G, H)	Loamy Gleyed Matrix (F2) Depleted Matrix (F3)	(LRR H outside of MLRA 72 & 73) Reduced Vertic (*18)
Depleted Gelinw Oark Surface (At 1)	Redox Dark Surface (F6)	Red Parent Material (T=2)
Thick Desk Serface (A12)	Depleted Bank Surface (F7)	- Other (Explain in Remarks)
Sandy Mucky Mineral (S1)	Redox Depressions (FB)	Indicators of hydrophytic vegetation and
2.5 cm Mucky Paet or Feat (S2) (LRR G, H		welleral hydrology must be present,
From Mucky Peet or Foet (S3) (LRR F)  Restrictive Layer (if present):	(MLRA 72 & 73 of LRR H)	voless disturbed or problematic
restrictive cayer or pressoric		
		40
Type NF	₹:	Muchic Sell Brannel? Vac No X
Type		Hydric Soil Present? Yes No
Type		Hydric Soil Present? Yes No
Type	pock all that are stat	
Type. N P Depth (inches):  Pomarks:  YDROLOGY  Velland Pydrology Indicators:  Primary Indicalors (minimum of one reduited, ch	**************************************	Secontary Indicators (minimum of two required)
Type	∠ Salt Crust (B\$1)	Secondary Indicators (minimum of two required) کیما Surface Soll Chacks (RR)
Type. N P Depth (inches):  Pomarks:  YDROLOGY  Velland Pydrology Indicators:  Primary Indicalors (minimum of one reduited, ch	**************************************	Secontary Indicators (minimum of two required)
Type	→ Solt Crust (B\$1)     → Aquatic invertehrates (B13)	Secondary Indicators (minimum of two required)  Secondary Indicators (RF)  Sparsely Vegetated Conceve Surface (B8)
Type. W Posenti (inches):  Pomarks:  YDROLOGY  Vertand Pydrology Indicators:  M Surface Water (A1)  High Weter Table (A2)  Saturation (A3)	Salt Crust (B\$1) Accepted lovertebrates (B13) Hydrogen Sulfide Odur (C1)	Secondary Indicators (minimum of two required)  Surface Soil Chacks (RB)  Sparsely Vegetated Conceve Surface (BB)  Drainage Patterns (B10)  Oxidized Rhizospheres on Living Roots (C3)
Type. N/A  Depth (inches):  Pomarks:  Pomarks:	Salt Crust (B11) Acutatic lowertehrates (B13) Mydrogen Suffice Orbir (C1) Ory-Season Water Table (C2) Oxidized Rhucopheres on Living Root (where a not tilled)	Secondary Indicators (minimum of two required)  Wighters Soll Chacks (RR)  Sparsely Vegelated Concave Surface (B8)  Drainage Patterns (R10)  Oxidized Rhizospheres on Using Roots (C3)  (where filled)  Creytish Burrows (C8)
Type.  Depth (inches):  Promarks:  YDROLOGY  Verland Pydrology Indicators:  Primery Indicalors (minimum of one redured of the primery Indicalors (Minimum of the primery Indicalors (	Salt Crust (B\$1) Aquatic lavertehrates (B13) Hydrogen Suffice Odur (C1) Ony-Season Water Table (C2) Onklibred Rhizospheres on Living Roci (where not filled) Presence of Reduced Jan (C4)	Secondary Indicators (minimum of two required)  2 Sentage Soil Clades (RR)  Sparsely Vegetated Conosee Surface (B8)  Drainage Patterns (B10)  Oxidized Rhizosopheres on Living Roots (C3)  (where filled)  Creytish Surrows (C8)  Seturation Visible on Aeria imagery (C9)
Type.  Depth (inches):  Pomarks:  PyDROLOGY  Vertand Pydrology Indicators:  Primery Indicators, (minimum of one reduited, ch.  M. Surface Water (A1)  High Weter Table (A2)  Saturation (A3)  Water Marks (B1)  Sectiment Deposits (B2)  Drift Copesits (33)  Agait Matter Crust (B4)  Iron Deposits (B5)	Salt Crust (B\$1) Actatic lavertehrates (B13) Hydrogen Sulfide Odur (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Rod Oxides a not tilled) Presence of Reduced Jan (C4) Thir Muck Surface (C7)	Secondary Indicators (minimum of two required)  Surface Soil Chacks (RR)  Sparsely Vegelated Conceve Surface (RR)  Drainage Patterns (R10)  Oxidized Rhizospheres on Living Roots (C3)  (where fulled)  Creyfish Burrows (C8)  Saluration Wistle on Aeria Imagery (C9)  Geomorphic Position (D2)
Type	Salt Crust (B\$1) Aquatic lavertehrates (B13) Hydrogen Suffice Odur (C1) Ony-Season Water Table (C2) Onklibred Rhizospheres on Living Roci (where not filled) Presence of Reduced Jan (C4)	Secondary Indicators (minimum of two required)  Surface Soil Chacks (RR)  Sparsely Vegetated Concave Surface (B8)  Drainage Patterns (R10)  Oxidized Rhizospheres on Living Roots (C3)  (where filled)  Creytast Burrows (C8)  Sebiration Visible on Aeria imagery (C8)  Geomorphic Position (D2)  FAC-Neutral Test (D5)
Type	Salt Crust (B\$1) Actatic lavertehrates (B13) Hydrogen Sulfide Odur (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Rod Oxides a not tilled) Presence of Reduced Jan (C4) Thir Muck Surface (C7)	Secondary Indicators (minimum of two required)  Surface Soil Chacks (RR)  Sparsely Vegelated Conceve Surface (RR)  Drainage Patterns (R10)  Oxidized Rhizospheres on Living Roots (C3)  (where fulled)  Creyfish Burrows (C8)  Saluration Wistle on Aeria Imagery (C9)  Geomorphic Position (D2)
Type	Salt Crust (B11) Acutatic lawerteheates (B13) Hydrogen Suffide Orbir (C1) Ony-Season Water Table (C2) Oxidized Rhucospheres on Living Rod (where not tilled) Presence of Reduced Jon (C4) Thân Mucc Surface (C7) - Chair (Explain in Remarks)	Secondary Indicators (minimum of two required)  Surface Soil Chacks (RR)  Sparsely Vegetated Concave Surface (B8)  Drainage Patterns (R10)  Oxidized Rhizospheres on Living Roots (C3)  (where filled)  Creytast Burrows (C8)  Sebiration Visible on Aeria imagery (C8)  Geomorphic Position (D2)  FAC-Neutral Test (D5)
Type.  Depth (inches):  Tomarks:  Popularid Pydrology Indicators:  Intervirual Pydrolo	Salt Crust (B11) Aquatic lavertehrates (B13) Mydrogen Suffice Orbir (C1) Ory-Season Water Table (C2) Oxidized Rhizospheres on Living Rod (where not tilled) Presence of Reduced Jon (C4) This Muce Surface (C7) (Moer (Explain in Remarks)	Secondary Indicators (minimum of two required)  Surface Soil Chacks (RR)  Sparsely Vegetated Concave Surface (B8)  Drainage Patterns (R10)  Oxidized Rhizospheres on Living Roots (C3)  (where filled)  Creytast Burrows (C8)  Sebiration Visible on Aeria imagery (C8)  Geomorphic Position (D2)  FAC-Neutral Test (D5)
Type.  Depotit (inches):  Tomarks:  **CDROLOGY  Vertaind Psydrofogy Indicators:  **Integry Indicators:  Integry Integry Integry Indicators:  Integry Integ	Salt Crust (B11) Aquatic lovertehrates (B13) Mydrogen Suffice Orbir (C1) Ory-Season Water Table (C2) Oxidized Rhizospheres on Living Rod (where not tilled) Presence of Reduced Jon (C4) This Muce Surface (C7) (Moer (Explain in Remarks)	Secondary Indicators (minimum of two required)  Winface Soll Checks (RR)  Sparsely Vegelated Concave Surface (B8)  Drainage Patterns (B10)  Oxidized Rinzospheres on Living Roots (C3)  (where filled)  Creytish Burrows (C8)  Saturation Wistle on Aeria Imagery (C9)  Geomorphic Position (D2)  FAC-Neutral Test (D5)  Frost-Heave Hummocks (27) (LRR F)
Type	Salt Crust (B11) Actatic layer threates (B13) Hydrogen Suffice Orbir (C1) Ony-Season Water Table (C2) Oxidized Rhizospheres on Living Rod (Where not tilled) Presence of Reduced Jon (C4) Thân Mucc Surface (C7) (Char (Explain in Remarks)  Depth (inches) Depth (inches) Union (B1)	Secondary Indicators (minimum of two required)  *** Surface Soll Chacks (RB)  ** Spansely Vegelated Conceive Surface (B8)  Drainage Patterns (B10)  Oxidized Rhizosoberes on Living Roots (C3)  (where filled)  Creytish (Surrows (C8)  Saturation Visible on Aeria Imagery (C9)  Geomorphic Position (D2)  FAC-Neutral Test (D5)  Frost-Heave Hummocks (D7) (LRR F)
Type	Salt Crust (B11) Actatic layer threates (B13) Hydrogen Suffice Orbir (C1) Ony-Season Water Table (C2) Oxidized Rhizospheres on Living Rod (Where not tilled) Presence of Reduced Jon (C4) Thân Mucc Surface (C7) (Char (Explain in Remarks)  Depth (inches) Depth (inches) Union (B1)	Secondary Indicators (minimum of two required)  *** Surface Soll Chacks (RB)  ** Spansely Vegelated Conceive Surface (B8)  Drainage Patterns (B10)  Oxidized Rhizosoberes on Living Roots (C3)  (where filled)  Creytish (Surrows (C8)  Saturation Visible on Aeria Imagery (C9)  Geomorphic Position (D2)  FAC-Neutral Test (D5)  Frost-Heave Hummocks (D7) (LRR F)
Type	Salt Crust (B11) Actatic layer threates (B13) Hydrogen Suffice Orbir (C1) Ony-Season Water Table (C2) Oxidized Rhizospheres on Living Rod (Where not tilled) Presence of Reduced Jon (C4) Thân Mucc Surface (C7) (Char (Explain in Remarks)  Depth (inches) Depth (inches) Union (B1)	Secondary Indicators (minimum of two required)  *** Surface Soll Chacks (RB)  ** Spansely Vegelated Conceive Surface (B8)  Drainage Patterns (B10)  Oxidized Rhizosoberes on Living Roots (C3)  (where filled)  Creytish (Surrows (C8)  Saturation Visible on Aeria Imagery (C9)  Geomorphic Position (D2)  FAC-Neutral Test (D5)  Frost-Heave Hummocks (D7) (LRR F)
Type	Salt Crust (B11) Actatic layer threates (B13) Hydrogen Suffice Orbir (C1) Ony-Season Water Table (C2) Oxidized Rhizospheres on Living Rod (Where not tilled) Presence of Reduced Jon (C4) Thân Mucc Surface (C7) (Char (Explain in Remarks)  Depth (inches) Depth (inches) Union (B1)	Secondary Indicators (minimum of two required)  *** Surface Soll Chacks (RB)  ** Spansely Vegelated Conceive Surface (B8)  Drainage Patterns (B10)  Oxidized Rhizosoberes on Living Roots (C3)  (where filled)  Creytish (Surrows (C8)  Saturation Visible on Aeria Imagery (C9)  Geomorphic Position (D2)  FAC-Neutral Test (D5)  Frost-Heave Hummocks (D7) (LRR F)
Type.  Depth (inches):  Promarks:  Promarks:	Salt Crust (B11) Actatic layer threates (B13) Hydrogen Suffice Orbir (C1) Ony-Season Water Table (C2) Oxidized Rhizospheres on Living Rod (Where not tilled) Presence of Reduced Jon (C4) Thân Mucc Surface (C7) (Char (Explain in Remarks)  Depth (inches) Depth (inches) Union (B1)	Secondary Indicators (minimum of two required)  *** Surface Soll Chacks (RB)  ** Spansely Vegelated Conceive Surface (B8)  Drainage Patterns (B10)  Oxidized Rhizosoberes on Living Roots (C3)  (where filled)  Creytish (Surrows (C8)  Saturation Visible on Aeria Imagery (C9)  Geomorphic Position (D2)  FAC-Neutral Test (D5)  Frost-Heave Hummocks (D7) (LRR F)
Type.  Depth (inches):  Promarks:  Promarks:	Salt Crust (B11) Actatic layer threates (B13) Hydrogen Suffice Orbir (C1) Ony-Season Water Table (C2) Oxidized Rhizospheres on Living Rod (Where not tilled) Presence of Reduced Jon (C4) Thân Mucc Surface (C7) (Char (Explain in Remarks)  Depth (inches) Depth (inches) Union (B1)	Secondary Indicators (minimum of two required)  *** Surface Soll Chacks (RB)  ** Spansely Vegelated Conceive Surface (B8)  Drainage Patterns (B10)  Oxidized Rhizosoberes on Living Roots (C3)  (where filled)  Creytish (Surrows (C8)  Saturation Visible on Aeria Imagery (C9)  Geomorphic Position (D2)  FAC-Neutral Test (D5)  Frost-Heave Hummocks (D7) (LRR F)
Type.  Depth (inches):  Promarks:  Promarks:	Salt Crust (B11) Actatic layer threates (B13) Hydrogen Suffice Orbir (C1) Ony-Season Water Table (C2) Oxidized Rhizospheres on Living Rod (Where not tilled) Presence of Reduced Jon (C4) Thân Mucc Surface (C7) (Char (Explain in Remarks)  Depth (inches) Depth (inches) Union (B1)	Secondary Indicators (minimum of two required)  *** Surface Soll Chacks (RB)  ** Spansely Vegelated Conceive Surface (B8)  Drainage Patterns (B10)  Oxidized Rhizosoberes on Living Roots (C3)  (where filled)  Creytish (Surrows (C8)  Saturation Visible on Aeria Imagery (C9)  Geomorphic Position (D2)  FAC-Neutral Test (D5)  Frost-Heave Hummocks (D7) (LRR F)
Type	Salt Crust (B11) Actatic layer threates (B13) Hydrogen Suffice Orbir (C1) Ony-Season Water Table (C2) Oxidized Rhizospheres on Living Rod (Where not tilled) Presence of Reduced Jon (C4) Thân Mucc Surface (C7) (Char (Explain in Remarks)  Depth (inches) Depth (inches) Union (B1)	Secondary Indicators (minimum of two required)  *** Surface Soll Chacks (RB)  ** Spansely Vegelated Conceive Surface (B8)  Drainage Patterns (B10)  Oxidized Rhizosoberes on Living Roots (C3)  (where filled)  Creytish (Surrows (C8)  Saturation Visible on Aeria Imagery (C9)  Geomorphic Position (D2)  FAC-Neutral Test (D5)  Frost-Heave Hummocks (D7) (LRR F)
Type. Death (inches):  DROLOGY  Interval of Pydrology Indicators:  Imary Indicators:  Imary Indicators (minimum of one redujed, ch  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Coposits (B3)  Algal Mation Crust (B4)  Inon Ceposits (B5)  Inundation Visible on Aerial Imagery (B7)  Water Stained Leaves (B9)  etd Observations:  Inface Water Present? Yes No  ater Table Present? Yes No  duration Present? Yes No  duration Present? Yes No  duration Present Data isteam guage, movion	Salt Crust (B11) Actatic layer threates (B13) Hydrogen Suffice Orbir (C1) Ony-Season Water Table (C2) Oxidized Rhizospheres on Living Rod (Where not tilled) Presence of Reduced Jon (C4) Thân Mucc Surface (C7) (Char (Explain in Remarks)  Depth (inches) Depth (inches) Union (B1)	Secondary Indicators (minimum of two required)  *** Surface Soll Chacks (RB)  ** Sparsely Vegelated Conceive Surface (B8)  Districtly Patterns (B10)  Oxidized Rhizosoberes on Living Roots (C3)  (where Allod)  Creytish Eurrows (C8)  Saturation Visible on Aeria Imagery (C9)  Geomorphic Position (D2)  FAC-Neutral Test (D5)  Frost-Heave Hummocks (D7) (LRR F)

olectrolle: Leng Gulch/SEA	# STM city/County C	Folden , Jefferson Sempling Date: 7/28
		State: COSampling Point: NRE4
		Page Sec PLNE, T\$45, R78
notions (billistope, terrace, etc.) ald Hard 6	g S /m Local relief recae	ave, convex, none): CON COVE Slope (%). 1
pregion (LRR): G/ Western Great Plais	s) at 39.73639	N Long: -105, 1725"N Dolum: NAD ?
W Map Unit Name: Englewood - Ur		
e of matic / hydrologic countdons on the site typics for	this time of year? Yes	No (If no explain in Remarks.)
		Are "Nomial Circumstances" present? Yes X No
a Vegetation N , Sol N , or Hydrology N	naturally moblematic?	(If needed, explain any answers in Remarks.)
DMIMARY OF FINDINGS - Attach site ma	ip snowing sampling pol	int locations, fransects, important features, et
aydrophyboVegetation Present? Yes _————————————————————————————————————	No Is the 5am	inland Arao
Nydric Soil Present? Yes	No X within a W	~ /
Vetland Hydrology Present? Yes	No. X	
emerks High Day of Vana		
High Precip Year		
GETATION - Use scientific names of p	ants	
	Absocite Comment Indica	olor   Dominance Test worksheet:
ree Stratum (Plot size:	% Cover Spenies? Steam	
Fraxinus pennsylvani	C4 95 Y FA	C. Dat Ale Offic, FACW, or FAC
		(excluting FAC-): (A)
		Total Number of Dominant
		Species Across All Strate: (B)
acting/Shrib Stratum (Plnt size) 15	95 - Total Cover	Percent of Dominant Species // 7
Frexions property	s 3 Y FA	that Are Oils, FACW, or FAC. 66. 7 (A/B
- FIRE LAWS JULANTIANCE	<del>5 </del>	Prevalence Index worksheet:
CONTROL CONTROL OF ACT WATER AND THE CONTROL OF ACT		Tefal % Cover of Multiply by:
		OBL spenies x1=
		FACW species x2 =
ζ. '	3 = Total Cover	FAC species x3 =
ip straptill (blot erse:)	7 10 41	FACU species x 4 =
Brongs Jacones	$-\frac{3}{2}$	UPL speciesx5
unk horbs		Column Totals:(A)(B)
		Prevalence Index = E/A =
(a) (b)		Hydrophytic Vegetation Indicators:
		Tominance Test is >50%
		The Valence Index Is ≤3.0
		Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
SELECT A PAGE IN		Problematic Hydrophytic Vegetation (Explain)
		- ( Comment of the shorter and comment ( Tylendam)
5	= Total Cover	Indicators of hydric soil and welland hydrology must
		he present, unless disturbed or problematic.
cody Vine Stratum (Mot size:)		Hydrophytic
oody Vine Stratum (Mot size:)	CIENC POR A	Vegetation V
oody Vine Stretum (Plot size: U	O - Tatal Com	
ati.	= Total Cover	Present? Yes No
Bare Ground in Herb Statum 94  marks  Dare ground in world		

		o a sa salamana	,
SOIL	N	Sampling Point NREL - 0 Y	4
Profile Description: (Describe to the depth		firm the absence of indicators.)	
(niches)	Recox Festures Color (moist) % Typg Log	Texture Remarks	
0-8 104124/3 100		Sel Sale Cron	
9-20 104R 3/2 90	INTR 2/1 10 5 M	SICL Sitt Clarkegon	
	101 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	• m 10 11 911 120 1		
		30 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	
"Type: C=Concentration, D=Depletion, RM="	Reduced Matrix, CS=Covered or Coated Sand	Grains. *Location: PL=Pore Fining, M=Matrix.	
Hydric Soli Indicators:  Applicable to all L	대통하다 이 내용에 있는 항상 사람들이 하게 되었다면 하는데	Indicators for Problematic Hydric Solis <sup>3</sup> :	
N Historial (A1)	M_ Sandy Gleyed Matrix (S4)     Conduction (S5)	1 cm Mick (A9) (LRR I, J)	
Histic Epipedon (A2)     Alack Histic (A3)	Sendy Rodox (S5) Shipped Mahix (S6)	Coest Preirid Redox (A16) (LRR F, G, H)     Dark Surface (S7) (LRR G)	
Hydrogen Suifida (A4)	Loamy Mucky Mineral (F1)	High Palns Dograssions (F13)	
Stretified Layers (AS) (LRR F)	Loamy Gleyed Matrix (F2)	(I RR H notside of MLRA 72 & 73)	
1 om Mick (A3) (LRR F, G, H)	Depleted Methy (F3)	Reduced Vertic (F15)	
Depleted Relow Dark Surface (A11) Thick Dark Surface (A12)	Redox Cark Surface (F6)  Depleted Dark Surface (F7)	Red Parent Material (TF2) Other (Explain in Remarks)	
I Sandy Mucky Mineral (\$1)	Redox Depressions (F8)	Indicators of hydrophytic vegetation and	
2.5 cm Mucky Peat or Peat (S2) (LRR G,	** *** *** *** *** *** *** *** *** ***	wetland hydrology must be present,	
Estrictive Layer (if present);	(MLRA 72 & 73 of LRR H)	unless disturbed of problematic,	
200-200-200-200-200-200-200-200-200-200		- I	
Type:  Depth (inches):		Hydric Solt Present? Yes No X	
Type:	<del>-</del>	Hydric Soll Present? Yes No X	
Type: A Depth (inches): Remarks:		Hydric Solt Present? YesNo	
Type: A Depit (inches): Remarks:			
Type:A		Secondary Indigators (minimum of two required)	
Type:A	✓ Sell Crust (B11)	Secondary Indigators (minimum of two required)  **Surface Sof Charles (R6)	
Type: A Depth (inches):	Salk Crust (B11) Aquatic overtennales (B13)	Secondary Indicators (mini trum of two required)  V Surface Sof Cranks (P6)  4 Sparsely Vegetated Concave Surface (B8)	
Type:A	Salt Crust (B11) Aquatic invertentales (B13) Eyonogen Suttide Occur (C1)	Secondary Indigators (mini trum of two required)  # Surface Soi Clarks (B6)  # Sparsely Vegetated Concave Surface (B8)  Drainage Patterns (B10)	
Type:	Salk Crust (B11) Aquatic overtennales (B13)	Secondary Indicators (mini trum of two required)  #/ Surface Sof Cranks (P6)  #/ Sparsely Vegetated Concave Surface (B8)  Drainage Patterns (B10)  Oxidized Rhizospheres on Living Frosts (C3)	
Type:	V   Salt Crust (B11)     Aquatic overtennales (B13)     Hydrogen Sulfide Occir (C1)     Dry-Scason Water Table (C2)     Oxidized Rhizzspheres on Living Rock (Where not tilled)	Secondary Indigators (minimum of two required)  ## Surface Soil Charles (PB)  ## Sparsely Vegetoted Concave Surface (B8)  Dreinage Patterns (B10)  Oxidized Rhizospheres on Living Roots (C3)  (where filled)  Crayfian Porrows (U8)	
Type:	V   Salt Crust (B11)	Secondary Indigators (minimum of two required)  ## Surface Sof Cracks (R6)    Sparsely Vegetated Concave Surface (B8)   Drainage Patterns (B10)   Oxidized Rhizospheres on Living Roots (C3)   (where tilled)   Craylian Parrows (U8)   Saturation Visible on Aerial Imagery (C9)	
Type:	Salt Crust (B11) Aquation vertennales (B13) Hydrogen Suthet Occur (C1) Dry-Scason Water Table (C2) Cwidized Rhizospheres on Living Root (where not filled) Presence of Reduceil Iron (C4) Thin Muck Surface (C7)	Secondary Indicators (minimum of two required)  Surface Soft Cranks (P6)  Sparsely Vegetated Concave Surface (B8)  Dreinage Patterns (B10)  Oxidized Rhizospheres on Living Frosts (C3)  (where titled)  Craylian Rurrows (U8)  Saturation Visible on Abrial Imagery (C9)  Geomorphic Position (D2)	
Type:	V   Salt Crust (B11)	Secondary Indicators (mini team of two required)  V Surface Soil Cranks (P6)  Sparsely Vegetated Consave Surface (B8)  Dreinage Patterns (B10)  Oxidized Rhizospheres on Living Roots (C3)  (where titled)  Crayfian Burrows (U8)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  FAC-Neutral Test (U5)	
Type:	Salt Crust (B11) Aquation vertennales (B13) Hydrogen Suthet Occur (C1) Dry-Scason Water Table (C2) Cwidized Rhizospheres on Living Root (where not filled) Presence of Reduceil Iron (C4) Thin Muck Surface (C7)	Secondary Indicators (minimum of two required)  Surface Soft Cranks (P6)  Sparsely Vegetated Concave Surface (B8)  Dreinage Patterns (B10)  Oxidized Rhizospheres on Living Frosts (C3)  (where titled)  Craylian Rurrows (U8)  Saturation Visible on Abrial Imagery (C9)  Geomorphic Position (D2)	
Type:	V   Salt Crust (B11)     Aquatic overtennales (B13)     Hydrogen Sulfide Occir (C1)     Dry-Season Water Table (C2)     Cxidized Rhizzespheres on Living Roof (where not tilled)     Presence of Reduced Iron (C4)     Thin Muck Surface (C7)     Other (Explain in Remarks)	Secondary Indicators (mini team of two required)  V Surface Soil Cranks (P6)  Sparsely Vegetated Consave Surface (B8)  Dreinage Patterns (B10)  Oxidized Rhizospheres on Living Roots (C3)  (where titled)  Crayfian Burrows (U8)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  FAC-Neutral Test (U5)	
Type:	V   Salt Crust (B11)	Secondary Indicators (mini team of two required)  V Surface Soil Cranks (P6)  Sparsely Vegetated Consave Surface (B8)  Dreinage Patterns (B10)  Oxidized Rhizospheres on Living Roots (C3)  (where titled)  Crayfian Burrows (U8)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  FAC-Neutral Test (U5)	
Type:	V Salt Crust (B11)	Secondary Indicators (mini team of two required)  V Surface Soil Cranks (P6)  Sparsely Vegetated Consave Surface (B8)  Dreinage Patterns (B10)  Oxidized Rhizospheres on Living Roots (C3)  (where titled)  Crayfian Burrows (U8)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  FAC-Neutral Test (U5)	
Depth (inches):  Remarks:    Proposition   P	Salt Crust (B11) Aquatic overtennales (B13) Hydrogen Sulfide Occir (C1) Dry-Selason Water Table (C2) Cividized Rhizzespheres on Living Roci (where not tilled) Presence of Reducet Iron (C4) Thin Muck Surface (C7) Other (Explainin Remarks)  Depth (Inches). Depth (Inches).	Secondary Indigators (minimum of two required)  ### Surface Sci Clarks (R6)    Sparsely Vegesided Concave Surface (R8)   Drainage Patterns (R10)   Oxidized Ritizospheres on Living Roots (C3)   (where titled)   Crayfian Porrows (U8)   Saturation Visible on Aerial Imagery (C9)   Cecmorphic Postion (D2)   FAC-Neutral Post (U5)   Frost Feave Hummocks (D7) (LRR F)	
Depth (inches):  Remarks:    Proposition   P	Salt Crust (B11) Aquatic overtennales (B13) Hydrogen Sulfide Occir (C1) Dry-Selason Water Table (C2) Cividized Rhizzespheres on Living Roci (where not tilled) Presence of Reducet Iron (C4) Thin Muck Surface (C7) Other (Explainin Remarks)  Depth (Inches). Depth (Inches).	Secondary Indigators (minimum of two required)  ### Surface Sci Clarks (R6)    Sparsely Vegesided Concave Surface (R8)   Drainage Patterns (R10)   Oxidized Ritizospheres on Living Roots (C3)   (where titled)   Crayfian Porrows (U8)   Saturation Visible on Aerial Imagery (C9)   Cecmorphic Postion (D2)   FAC-Neutral Post (U5)   Frost Feave Hummocks (D7) (LRR F)	
Type:	Salt Crust (B11) Aquatic overtennales (B13) Hydrogen Sulfide Occir (C1) Dry-Selason Water Table (C2) Cividized Rhizzespheres on Living Roci (where not tilled) Presence of Reducet Iron (C4) Thin Muck Surface (C7) Other (Explainin Remarks)  Depth (Inches). Depth (Inches).	Secondary Indigators (minimum of two required)  ### Surface Sci Clarks (R6)    Sparsely Vegesided Concave Surface (R8)   Drainage Patterns (R10)   Oxidized Ritizospheres on Living Roots (C3)   (where titled)   Crayfian Porrows (U8)   Saturation Visible on Aerial Imagery (C9)   Cecmorphic Postion (D2)   FAC-Neutral Post (U5)   Frost Feave Hummocks (D7) (LRR F)	
Type:	Salt Crust (B11) Aquatic overtennales (B13) Hydrogen Sulfide Occir (C1) Dry-Selason Water Table (C2) Cividized Rhizzespheres on Living Roci (where not tilled) Presence of Reducet Iron (C4) Thin Muck Surface (C7) Other (Explainin Remarks)  Depth (Inches). Depth (Inches).	Secondary Indigators (minimum of two required)  ### Surface Sci Clarks (R6)    Sparsely Vegesided Concave Surface (R8)   Drainage Patterns (R10)   Oxidized Ritizospheres on Living Roots (C3)   (where titled)   Crayfian Porrows (U8)   Saturation Visible on Aerial Imagery (C9)   Cecmorphic Postion (D2)   FAC-Neutral Post (U5)   Frost Feave Hummocks (D7) (LRR F)	
Type:	Salt Crust (B11) Aquatic overtennales (B13) Hydrogen Sulfide Occir (C1) Dry-Selason Water Table (C2) Cividized Rhizzespheres on Living Roci (where not tilled) Presence of Reducet Iron (C4) Thin Muck Surface (C7) Other (Explainin Remarks)  Depth (Inches). Depth (Inches).	Secondary Indigators (minimum of two required)  ### Surface Sci Clarks (R6)    Sparsely Vegesided Concave Surface (R8)   Drainage Patterns (R10)   Oxidized Ritizospheres on Living Roots (C3)   (where titled)   Crayfian Porrows (U8)   Saturation Visible on Aerial Imagery (C9)   Cecmorphic Postion (D2)   FAC-Neutral Post (U5)   Frost Feave Hummocks (D7) (LRR F)	
Type:	Salt Crust (B11) Aquatic overtennales (B13) Hydrogen Sulfide Occir (C1) Dry-Selason Water Table (C2) Cividized Rhizzespheres on Living Roci (where not tilled) Presence of Reducet Iron (C4) Thin Muck Surface (C7) Other (Explainin Remarks)  Depth (Inches). Depth (Inches).	Secondary Indigators (minimum of two required)  ### Surface Sci Clarks (R6)    Sparsely Vegesided Concave Surface (R8)   Drainage Patterns (R10)   Oxidized Ritizospheres on Living Roots (C3)   (where titled)   Crayfian Porrows (U8)   Saturation Visible on Aerial Imagery (C9)   Cecmorphic Postion (D2)   FAC-Neutral Post (U5)   Frost Feave Hummocks (D7) (LRR F)	
Popult (inches):  Remarks:  Remarks:  Walland Hydrology Indicators:  Pirmary Indicators (minimum of one required:  A Surrace Water (A1)  Figh Water Table (A2)  Saturation (A3)  Voter Marks (B1):  Sentiment Deposits (B2)  Drift Deposits (B3)  Algal Mation Count (B4)  From Deposits (B5)  Inundation Visible on Abrial magory (B7)  Waler-Standed Leaves (B9)  Feld Observations:  Surface Water Present?  Water Table Present?  Yes No  Water Jable Present?  Yes No  Glockides depollary fringel  Describe Recorded Data (Stream gauge, moni-	Salt Crust (B11) Aquatic overtennales (B13) Hydrogen Sulfide Occir (C1) Dry-Selason Water Table (C2) Cividized Rhizzespheres on Living Roci (where not tilled) Presence of Reducet Iron (C4) Thin Muck Surface (C7) Other (Explainin Remarks)  Depth (Inches). Depth (Inches).	Secondary Indigators (minimum of two required)  ### Surface Sci Clarks (R6)    Sparsely Vegesided Concave Surface (R8)   Drainage Patterns (R10)   Oxidized Ritizospheres on Living Roots (C3)   (where titled)   Crayfian Porrows (U8)   Saturation Visible on Aerial Imagery (C9)   Cecmorphic Postion (D2)   FAC-Neutral Post (U5)   Frost Feave Hummocks (D7) (LRR F)	

plediste: Leng Gulch/SF.	A IF STM CHUICCENTY C	olden. Jefferson Sampling Delo: 7/28
		Slate CO Sampling Point NREL
estimatorist Rupa Braus Rea	The Wood Steeling Township	Hange Sec DINE, TO45, R 70
idom (bilisione terrace etc.) (8-5 mg 4-d	1 fied channel ocal reliet recover	vo, convex, none) <u>Conciscue</u> Slape (%)
presion (188) Goldeston Great A	64s) 101 39 736/2	I ony - 105 x 1715 W Datum NAD
Map Unit Name: Haverson L	[10] 이 14 시 [18] (11] [12], 이 6 시 ( - Third Color State Color Col	NWI dassification
climatic / hydrologic conditions on the site typical	for this time of war 7. Yes. Y. N.	n(If no, explain in Romarks.)
Vegetahan N Sail or Hydrology		ure "Normal Circumstances" present? Yes No
Vegetation N , Soil N , or Hydrolegy_		I needed, explain any answers in Remieds )
JMWARY OF FINDINGS - Attach site	map snowing sampling poin	nt locations, transects, important features, e
lydrophylic Vegelation Present? Yes 📝	No Is the Samp	iled Area
4 (1977) 1 (	No within a Wai	
vetland Eydrology Present? Yes 🔀	No	
vegetation, plantil in coors	Constructed wetlan	ls - well established weeled
vegetation, planted in codes	e riprop. Soil not	well developed, water ponds 14
this grea		N
EGETATION – Use scientific names of	plants,	
ree Skasum (Plot size: 36°)	Absolute Dominant Indicate	[2] [1] [1] [2] [3] [3] [4] [4] [4] [4] [4] [4] [4] [4] [4] [4
Ge system (Plot size	% Cover_Species? Status	─ Number of Dominant Species That Are OBL, FACW, or FAC →
		(excluding FAC-): (A)
		Total Number of Openinant ?
		Species Across All Strata. (D)
15	= Total Cover	Percent of Comminant Species /20 20
aoling/Shrub Stratum (Plot size) /.5	J 3 Y 021	That Are OBL, FACW or FAC: _/OO_ (ARE
Salik Exigua		Prevalence Index worksheet:
		Total % Cover of: Multiply by:
NALDIE INGE		OBD species x1
		FACW somics x2 =
5	= Total Cover	FAC speces x3 =
erb (Strahum (Plotaice	60 Y 036	FACU species x 4 = UPL species 5 =
		<del>-</del> 1
Scheensple tus acit	7 N FACU	
	T N FACU	Prevalence index = B/A =
Scheenplates quite Cirsium arvense Conium maculatum Polyoppa monspolicas	T N FACE	Prevolence index = B/A =
Schleappertus quite Cirsium arvense Conium maculatum	T N FACE	Prevulence index = B/A = Hydrophytic Vegetation indicators:  V_Dominance Test is >50%
Scheeniple to acute Consum anvense Consum maculatum Polymon managaliens Polymon managaliens	J N FACE	Prevalence index = B/A =  Hydrophytic Vegetation indicators:  V Dominance Test is >50%  Prevalence Index is \$3.0*
Scheenplants quete Cirsium arvense Conium maculatum Polyogon monspolicus Michel Spi	1 A FACE 3 N 0/36 5 N FACE	Prevalence macx = B/A = Hydrophytic Vegetation indicators:  Y Dominance Test is >50% Prevalence Index is \$3.0'  Marytimogical Adaptations (Provide supporting data in Remarks or on a separate \$2 eet)
Scheenplants quete Cirsium arvense Conium maculatum Polyogon monspolicus Michel Spi	1 A FACE 3 N 0/36 5 N FACE	Prevalence macx = B/A = Hydrophytic Vegetation indicators:  V Dominance Test is >50% Prevalence Index is \$3.01  **M Marphitophical Adaptistions (12 oude supporting
Scheenplants garte Cirsium arvense Conium maculatum Polympa monspolicus #/Curex Sp.  Juncus Sp.	1 d F4cv 3 N 03c 5 N FAC 5 N FAC	Prevalence macx = B/A = Hydrophytic Vegetation indicators: Y Dominance Test is >50% Prevalence Index is \$3.0' Marhinogical Adaptations (Provide supporting data in Remarks of on a separate \$2 ect) Problematic Hydrophytic Vegetation (Exptain)
Scheenplatus quite Cirsium arvense Conium maculatum Polyogen monspelians Polyogen monspelians Flucus Spi	1 A FACE 3 N 0/36 5 N FACE	Prevalence macx = B/A =  Hydrophytic Vegetation indicators:  Y Dominance Test is >50%  Prevalence Index is \$3.0!  Marphrological Adaptations (Provide supporting data in Remarks of on a senarate sheet)  Problematic Hydrophytic Vegetation (Explain)  Iledicators of bydrin wir and welland hydrology must
Scheenple to acute Cirsium arvense Conium maculatum Polymen manspolicus Florex Sp.	1 d F4cv 3 N 03c 5 N FAC 5 N FAC	Prevalence macx = B/A = Hydrophytic Vegetation indicators: Y Dominance Test is >50% Prevalence Index is \$3.0' Marytimogical Adaptations (Provide supporting data in Remarks or on a separate \$2 cet) Problematic Hydrophytic Vegetation (Explain)  Indicators of bydrin we and welland hydrology must be present, unders disturbed or problematic.
Scheenple to acute Cirsium arvense Conium maculatum Polyogen monspeliens \$100 ex Sp.  Juneus Sp.	7 A FACU 3 N 0/3c 5 N FAC 5 V FAC 103 Talal Cover	Prevalence macx = B/A = Hydrophytic Vegetation indicators: Y Dominance Test is \$5.0° Prevalence Index is \$3.0° Mathricogned Adaptations (Provide supporting data in Remarks of on a senarate sheet)  Problematic Hydrophytic Vegetation (Exptain)  Indicators of hydrin with and welland hydrology must be present, inners disturbed or proplematic.  Hydrophytic
Scheenple to acute Cirsium arvense Conium maculatum Polyogen monspeliens \$100 ex Sp.  Juneus Sp.	1 d F4cv 3 N 03c 5 N FAC 5 N FAC	Prevalence macx = B/A = Hydrophytic Vegetation indicators: Y Dominance Test is >50% Prevalence Index is \$3.0' Marytimogical Adaptations (Provide supporting data in Remarks or on a separate \$2 cet) Problematic Hydrophytic Vegetation (Explain)  Indicators of bydrin we and welland hydrology must be present, unders disturbed or problematic.

eded to document the indicator or confirm  9cdor Features  9cd (most) 2 year i.o.c.  5 1/6 5/8 26 C M	Texture Remarks SQC Secondary Clay SQCL Sunday Clay
out (morst) % "yoe" i.or."	
210 5/2 185 5 111	Sect Surdy Clay Lies
1	successful and succes
	· · · · · · · · · · · · · · · · · · ·
	21 - 21 - 10
iced Matrx, CS=Covered or Coated Sand Gr . unless otherwise noted.)	rains. <sup>2</sup> Location. PL+Peru Lining, M=Meths. Indicators for Problematic Hydric Soils <sup>3</sup> :
<ul> <li>☑ Sandy Gleyed Matrix (\$4)</li> </ul>	∠ 1 cm Muck (A3) (LR R 1, J)
Sendy Redox (S5)	Coast Frairie Redox (A16) (LRR F, G, H)
Stripped Matrix (S6)	Dark Surface (S7) (LRR G)
	High Plains Depressions (716) (LRR Highstide of MLRA 72 8 73)
	Reduced Vertic (F18)
Pedox Uark Surface (+6)	Red Parent Material (TF2)
AZ Depleted Dark Surface (F7)	Other (Explain in Romanks)
	<sup>3</sup> Indicators of hydrophytic vogetallon and wellend hydrology must be present.
(MLRA 72 & 73 of LER H)	unless districted or problematic
	2
	v /
CONTRACT TO SELECT THE SECOND	Hydric Shill Present? Yas X No
+ riprep mek	85 Sampling to Se
k all that activi	Secondary indicators (minimum of two required)
	N Surface Scii Cracks (B6)
Aguatic Invertebrates (B13)	Sparsely Vogeteted Concave Surface (38)
Hydrogen Sulfide Oppr (C1)	Orainage Patterns (810)
N Dry-Season Water Table (C?)	⚠ Oxidized Rhizosopheres on Living Roots (C3)
	Crayfish Burrows (C8)     Saturation Visible on Aerial Imagery (C9)
그리는 경기를 되어 하지만 전문 선생님이 되고 있는 것이 없는 것이 없어야 하지만 하지만 하다면 하다.	Geomorphic Position (O2)
Uthor (Explain in Remarks)	Y FAC-Neutral Test (75)
	Frost-Heave Hummocks (D7) (LRR F)
171	H = 45
Jepth (Inches):	
Death (Inches):	N
Depth (inches): Wella	nd Hydrology Present? Yes X No
	PLICATED.
well, serial photos, provious inspections), if	T SYBILEDIC:
ywell, serial photos, provious inspections), if	TOVALLADIC:
	1 SYMMADIC:
well, serial photos, provious inspections), if	1 SVORADIC:
	1 SVORADIC:
	1 SVORADIC:
	unless otherwise noted.)  J. Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Loamy Mucky Mineral (F1)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  Pedox Cerk Surface (F6)  J. Depleted Dark Surface (F6)  M. Depleted Dark Surface (F7)  Redox Depressions (F8)  I tigh Plains Depressions (F16)  (MURA 72 & 73 of LRR H)  Redox Cert (P1)  Adjustic Invertebrates (B13)  Hycrogen Sutface Open (C1)  Orbidized Rhizospheres on Living Rods (Where not titled)  Presence of Reduced Iron (C4)  M. This Muck Surface (C7)  Other (Explain in Remarks)  Jepth (Inches):  Depth (Inc

Project/Site. Leng Gulg	· · · · · · · · · · · · · · · · · · ·			- Great Plains Region
	OL/SEAT	STMO	ity/Coxinly Go	Iden, Jefferson Sampling Date: 7/29/0
Applicant/Owner! <u>Na+i</u> e ze l	Renovable	Ener	x Lab	state: CO Sampling Point NREL - OL
Investigator(s). Rypn, 1500	us, Beatty			ange Sec. 01NE, TO45, B70W
Landform (hillslope, terrace, etc.): Subregion (LRR) <u>G/We5+</u> c	on Great Plains	Access to the second of	.ccal relief (солсача, 9.7364%	convex.hone) ( 8.1726 W Datem, NAD 83
Soli Map Unit Name. Final o	1110	*		/exNW:classification:
Are climatic / bydrologic conditions				
Are Vegetation N Snil N	and the second second second second second	igaificantly d		Normal Circumstances' present? Yes X No
Are Vergiciation ${\cal N}$ , Soil ${\cal N}_{\perp}$	, ar Hydrology <u>N</u>	aturally prob	ismatic? (If s	eaded, explain any answers in Remarks.)
SUMMARY OF FINDINGS -	Attach site map	showing :	sampling point	locations, transects, important features, etc.
Hydrochylic Vegeletion Present?	Yes X N			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Hydric Soil Present?	Yes N		is the Sample within a Wotla	~
Welland Fydrofogy Present?	YesN	· 💢	. William a croder	
Remarks: High Precip	year			
7	77. 5-			
VEGETATION – Use scient	itic names of plan	1000	Dominant hukeston	Dominional Test worksheet:
Tree Stratum (Plot size: , 2	o' ,		Species? Status	Number of Dominant Species
1 _ Sallx 9my99	dylaides	40	V FACE	That Are OBL, FACW or FAC (A)
2 - Fagaras de	Empsylvanice	10	N FALW	
1 6 lange U	Imus Punils	-	N NL	Total Number of Dominant Species Across All Strate: 5 (B)
	15		: Total Cover	Parcent of Dominant Species
Sading/Shrub Stratum (Plot size		5	Y FACW	That Ale OBL, FACW, or FAC: (A/B)
2 Prose would	S.)	3	FACU	Prevalence Index worksheet:
a. Franks viral	niana	<u>_T</u> _	N FACU	OBL spocks x 1 - x
				ODL SPRING
4				FACVV species x 2 =
4. 5.			Total Cover	FACW species
4	5',		- Total Cover	FAC species
e 5.  Herb Stralum (Plot size: 1. Commerce in a commerce i	5', n's		Y NL	FAC species
e	5')	70	N FACE	FAC species
e 5.  Herb Stralum (Plot size: 1. Commerce in a commerce i	n's meruta evense	70 10 10 5	Y NL	FAC species
e 5.  Herb Stralum (Plot size: 1. Commerce in a commerce i	5' mis menuta evense epens	70 10 10 5	N FACU N FACU	FAC species x3 =  If AC J species x4 =  UPL species x5 -  Column Totals: (A) (B)  Prevalence Index = B/A =  Hydrophytic Vegetation Indicators:
e 5.  Herb Stralum (Plot size: 1. Commerce in a commerce i	5's answig coverse epons	70 10 10 5	N FACU N FACU	FAC species x3 = 1/AC.J species x4 = 1/AC.J species x5 = 1/AC.J sp
Herb Stralum (Prot size:  Dancing income Dancing in Signature A Aprophysia Co	5's mis meruta evense epens	70 /0 /0 5	N FACU N FACU	FAC species x3 =  If ACL aperies x4 =  UPL species x5 -  Column Totals: (A) (B)  Prevalence Index = B/A =  Hydrophytic Vegetation Indicators:  Dominance Test is >50%  = Prevalence Index x < 3.0°  Microphotogram Adaptations (Provide supporting)
e 5.  Herb Stralum (Plot size: 1. Commerce in a commerce i	5 mis	70 10 10 5	N FACU N FACU	FAC species x3 =  IACLI species x5 =  UPL species x5 =  Column Totals: (A) (B)  Prevalence Index = B/A =  Hydrophytic Vegetation Indicators:
herb Stralum (Pid size:  Date of Stralum (Pid size:  Date of Stralum (Pid size:  Date of Stralum (Stralum (Stralum))  Appropry (Stralum)  Appropry (Stralum)  B.  B.	5's mis mercuta critase epicas	70 10 10 5	N FACU N FACU	FAC species x3 =  If ACL aperies x4 =  UPL species x5 -  Column Totals: (A) (B)  Prevalence Index = B/A =  Hydrophytic Vegetation Indicators:  Dominance Test is >50%  = Prevalence Index x < 3.0°  Microphotogram Adaptations (Provide supporting)
4. Herb Stralum (Pid size: 1. Darry lis gle 3. Carry lis gle 4. Apropyran 6. 6	5's		N FACU N FACU	FAC species x3 =  IACLI species x5 =  UPL species x5 =  Column Totals: (A) (B)  Prevalence Index = B/A =  Hydrophytic Vegetation Indicators:
4. Stalum (Protsize: 5. Protsize: 6. Protsiz	epens		N FACU N FACU N FACU N FAC	FAC species x3 =  If AC J species x4 =  UPL species x5 =  Column Totals: (A) (B)  Prevalence Index = B/A =  Hydrophytic Vagetation Indicators:
4. Stallim (Prot size: Sta	epens		N FACU N FACU N FACU N FAC	FAC species x3 =  IPAC J species x4 =  UPL species x5 - Column Totals: (A) (B)  Prevalence Index = B/A =  Hydrophytle Vegetation Indicators:  Y Dominance Tost is -50%  Prevalence Index x 53.01  M Morphologous Adaptations' (Provide supporting data in Romarks or on a separate sheet)  Problematic Hydrophytic Vegetation' (Explans)  Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Hydrophytic  Vegetation
4. Stallim (Prot size: Sta	epens		N FACU N FACU N FACU N FAC	FAC species x3 =  If AC J species x4 =  UPL species x5 -  Column Totals: (A) (B)  Prevalence Index = B/A =  Hydrophytic Vagetation Indicators:  Y Dominghon Test is +50% =  Prevalence Index x <3.0°  Morphological Adeptations! (Provide supporting data in Romerks or on a separate sheet)  Proplematic Hydrophytic Vegetation! (Explain)  Indicators of hydric soil and wetland hydrology intust be prosent, unless disturced or problematic.  Hydrophytic

SOIL		Sampling Pool NREL - 06
	readed to document the historiar or confin	n the absence of Indicators.)
Depth Matny (notes) Color (most) %	Redex Frehures Color/moist: % Type Lec	Texture Hemerks
0-19 104R6/3 100		FSa Fine Sound
19-24 10 YR 5/4 100		FS9
	D#	
		auts. "Location: PL=Pore Lining, M=Metrix
Hydric Soli Indicators: [Applicable to all Li	KRs, unless otherwise noted.)  Sendy Gleyed Matrix (S4)	Indicators for Problematic Hydric Soils <sup>9</sup> ;  V 1 cm Mack (A9) (ERR I, J)
Fistic Epipedon (AZ)	⊥ Sandy Redox (S5)	Caest Preirie Rodox (A16) (LRR F, G, H)
↓ Black Histic (A3)	Stripped Matrix (S6)	Tork Surface (S7) (LRR G)
Litydrogen Suifide (A4)	Loamy Mucky Mineral (F1)	High Plains Decressions (F16)
Stratified Layers (A5) (LRR F)  1 cm Muck (A9) (LRR F, G, H)	Loamy Gleyed Matrix (F2)  Depleted Matrix (F5)	(LRR H nutside of MLRA 72 & 73) Reduced Vertic (F18)
Depleted Below Dark Surface (A11)	T Redox Dark Surface (F6)	T Red Parent Material (TF2)
Thick Dark Surface (A12)	Depleted Dark Surface (F7)	Citier (Explain a Remarks)
Dandy Mucky Maeral (S1)  2 5 cm Mucky Peat or Peat (S2) (LRR G,	High Plains Depressions (F16)	"Indicators of hydrophytic vegetation and welland hydrology must be present,
5 cm Mucky Post or Peat (S3) (LRR F)	(MLRA 77 & 73 of LRR H)	unless disturbed or problematic.
Restrictive Layer (If present):		
Type:/V#	<del>-</del> 6	. X
Depth (inites):	<del></del>	Hydric Soil Present? Yes No
HYDROLOGY		
Wetland Bydrology Indicators:		
Wettand Bydrology Indicators: Edingry Indicators (minimum of one required, s	[14] [14] [14] [14] [14] [14] [14] [14]	Secondary in acetors (minimum of two sequinud)
Wetland Bydrology Indicators: Eithery Indicators (minimum of one required, s  N Surface Water (A1)	N Saft Const (B*1)	✓ Surface Soil Cracks (B6)
Wettand Bydrology Indicators: Edingry Indicators (minimum of one required, s	[14] [14] [14] [14] [14] [14] [14] [14]	
Wetland Bydrology Indicators: Etim;rv Indicators (minimum of one required, s  & Surface Water (A1) High Water Table (A2) Surtraction (A3) Veter Marks (B1)	Saft Crist (B*1)     Aquatic Invertebrates (B13)     Hydrogen Sulfide Ottor (Ct)     Dry-Season Water Table (Ct2)	Surface Soil Cracks (B6)  Spersely Vegeteted Concave Surface (B6)  Drainage Patterns (B10)  Oxidized Mississipheres on Uning Roots (C3)
Wetland Bydrology Indicators:  Eithnery Indicators (minimum of one required, s  Ø Surface Water (A1)  High Weter Table (A2)  Saturation (A3)  Weter Marks (B1)  Sediment Deposits (B2)	Saft Crist (B*1)     Aquatic Invertebrates (B13)     Hydrogen Sulfide Ottor (Ct)     Dry-Season Water Table (Ct2)     Oxidized Rhizospheres on Living Roots (6)	Surface Soil Cracks (B6) Spersely Vegeteted Concave Surface (B6) Drainage Patterns (B10) Oxinized Misrospheres on Uning Roots (C3) (Where till ad)
Wetland Bydrology Indicators: Erlimery Indicators (minimum of one required, s  & Surface Water (A1)  High Weter Table (A2)  Safuration (A3)  Veter Marks (B1)  Sedment Deposits (B2)  Drift Deposits (B3)	Saft Crist (B*1)     Aquatic invertebrates (B13)     Hydrogen Sulfide Odor (Ct)     Dry-Season Water Table (G2)     Oxidized Rhizospheres on Living Roots (C)     (Where not (tilled))	Surface Soil Cracks (B6)  Spendery Vegeteted Concave Surface (B6)  Oralinage Falterin; (61:0)  Oxidized Allivious principles on Uning Roots (C3)  (Where tillied)  Creytish Burrows (C8)
Wetland Bydrology Indicators:  Eithnery Indicators (minimum of one required, s  Ø Surface Water (A1)  High Weter Table (A2)  Saturation (A3)  Weter Marks (B1)  Sediment Deposits (B2)	Saft Crist (B*1)     Aquatic Invertebrates (B13)     Hydrogen Sulfide Ottor (Ct)     Dry-Season Water Table (Ct2)     Oxidized Rhizospheres on Living Roots (6)	Surface Soil Cracks (B6) Spersely Vegeteted Concave Surface (B6) Drainage Patterns (B10) Oxinized Misrospheres on Uning Roots (C3) (Where till ad)
Wetland Hydrology Indicators: Eitingry Indicators (minimum of one required, s  M. Surface Water (A1) High Water Table (A2) Saltaration (A3) Water Marks (B1) Saddment Deposits (B2) Drift Deposits (B3) Asgal Mart of Crust (B4) For Deposits (B5) Intuidation Visible on Aerial Imagery (B7)	Set Crist (B*1) Aquatic invertebrates (B13) Hydrogen Sulfide Other (Ct) Dry-Season Water Table (CI2) Oxidized Rhizospheres on Tiving Roots (CWhere not (filled)) Presence of Reduced Yon (C4)	Surface Soil Cracks (B6)  Spendary Vegeteted Concave Surface (B6)  Drainage Follows: (B7)  Or interest Ministepheness on Uning Roots (C3)  (where tilled)  Creyfish Burrows (C8)  Saluration Whible on Aerial Imagery (C9)
Wetland Hydrology Indicators:  Erlimery Indicators (minimum of one required stress water (A1)  High Weter Table (A2)  Saturation (A3)  Weter Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Agail Mat or Crust (B4)  For Deposits (B4)  For Deposits (B5)  Intuitiation Visitio on Aerial Imagory (B7)  Water Stained Leaves (B9)	Saft Crist (B*1)     Aquatic invariebrates (B13)     Hydrogen Sulfide Odor (Ct)     Dry-Season Water Table (Ct2)     Oxidized Rhizospheres on Tiving Roofs (c)     (where not (tilled)     Presence of Reduced Iron (C4)     Thin Muck Surface (C7)	Surface Soil Cracks (B6)  Spendary Vegeteted Concave Surface (B6)  Drainage Follows (B7)  Oxintzert Mixespheres on Uning Roots (C3)  (Where tilled)  Creyfish Burrows (C8)  Saturation Waite on Aerial Imagery (C9)  Geomor(thic Possion (D2)
Wettand Hydrology Indicators: Entimpry Indicators (minimum of one required, s  M. Surface Water (A1) Hilgn Water Table (A2) Saturation (A3) System Marks (B1) Sodiment Deposits (B2) Drift Deposits (B3) Argal Mat or Crust (B4) For Deposits (B5) Intindiction Visible on Aerial Imagery (B7) Water Stained Leaves (B9) Field Observations:	Saft Crist (B*1) Aquatic invertebrates (B13) Hydrogen Sulf de Odor (Ct) Dry-Season Water Fahle (CI2) Oxidized Rhizospheres on Tiving Roots (CWhere not filled) Presence of Reduced ron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6)  Spensery Vegeteted Concave Surface (B6)  Drainage Fatterns (B5 0)  Ox rivest till receptiones on Uning Roots (C3)  (where tilling)  Creyfish Burrows (C8)  Saturation Waits on Aerial Imagery (C9)  Germorithic Position (C2)  FAC-Neutral Test (D5)
Wetland Bydrology Indicators:  Erlimery Indicators (minimum of one required of Surface Water (A1)  High Weter Table (A2)  Safuration (A3)  Veter Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Agail Mat or Crust (B4)  For Deposits (B5)  Introduction Visible on Aerial Imagery (B7)  Water Stained Leaves (B9)  Field Observations:  Surface Water Present? Yes No	Saft Crist (B*1) Aquatic invertebrates (B13) Hydrogen Sulfide Other (Ct) Dry-Season Water Table (C22) Oxidized Rhizospheres on Tiving Roofs (Cwhere not filled) Presence of Reduced von (C4) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6)  Spensery Vegeteted Concave Surface (B6)  Drainage Fatterns (B5 0)  Ox rivest till receptiones on Uning Roots (C3)  (where tilling)  Creyfish Burrows (C8)  Saturation Waits on Aerial Imagery (C9)  Germorithic Position (C2)  FAC-Neutral Test (D5)
Wetland Hydrology Indicators: Edimery Indicators (minimum of one required, s  Surface Water (A1) High Water Table (A2) Safaration (A3) Voter Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Asgal Mat or Crust (B4) Per Deposits (B5) Individuor Visitfo on Aerial Imagery (B7) Water Strained Leaves (B9) Field Observations: Surface Water Present? Yes No	Saft Crist (B*1) Aquatic invertebrates (B13) Hydrogen Sulfide Other (Ct) Dry-Seasor Water Table (CI2) Oxidized Rhizospheres on Tiving Roots (Civere not filled) Presente of Reduced ron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6)  Spendery Vegeteted Conceive Surface (B6)  Oratinage Followin (B10)  Oratinage Following Following Roots (C3)  (where tilled)  Creyfish Burrows (C8)  Saltaration Mailbe on Aerial Imagery (C9)  Germorphic Position (D2)  FAC-Neutral Test (D5)  Frost-Roave Hummocks (O7) (LRR 6)
Wetland Hydrology Indicators: Entimery Indicators (minimum of one required of Surface Water (A1) High Weter Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Agail Mat or Crust (B4) For Deposits (B5) Introduction Visible on Aerial Imagery (B7) Water Stained Leaves (B9) Field Observations: Surface Water Table Present? Water Table Present? No Water Table Present? No Saturation Present? Ves No	Saft Crist (B*1) Aquatic invertebrates (B13) Hydrogen Sulf de Odor (Ct) Dry-Season Water Table (C22) Oxidized Rhizospheres on ITving Roofs (Cwhere not filled) Presente of Reduced ron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)    Death (inches)	Surface Soil Cracks (B6)  Spendary Vegetated Concave Surface (B6)  Oralizage Relitems (B10)  Oxidizage Relitems (B10)  Oxidizat Relizabytheres on Uning Roots (C3)  (where tilled)  Creyfish Burrows (C8)  Saltzation Weible on Aerial Imagery (C9)  FAC-Neutral Test (D5)  Frost-Hoave Hummocks (O7) (LRR F)
Wetland Bydrology Indicators:  Erlimery Indicators (minimum of one required of Surface Water (A1)  High Weter Table (A2)  Softwation (A3)  Veter Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Agail Mat or Crust (B4)  For Deposits (B5)  Introduction Visible on Aerial Imagery (B7)  Water Stained Leaves (B9)  Field Observations:  Surface Water Present? Yes No Mater Table Present? Yes No Saturation Present? Yes No No Saturation Present?	Saft Crist (B*1) Aquatic invertebrates (B13) Hydrogen Sulfide Other (Ct) Dry-Seasor Water Table (CI2) Oxidized Rhizospheres on Tiving Roots (Civere not filled) Presente of Reduced ron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6)  Spendary Vegetated Concave Surface (B6)  Oralizage Relitems (B10)  Oxidizage Relitems (B10)  Oxidizat Relizabytheres on Uning Roots (C3)  (where tilled)  Creyfish Burrows (C8)  Saltzation Weible on Aerial Imagery (C9)  FAC-Neutral Test (D5)  Frost-Hoave Hummocks (O7) (LRR F)
Wetland Bydrology Indicators:  Erlimery Indicators (minimum of one required, s  Surface Water (A1)  High Wetler Table (A2)  Saluration (A3)  Veter Marks (B1)  Sodiment Deposits (B2)  Drift Deposits (B3)  Asgal Mat or Crust (B4)  Per Deposits (B5)  Intuitation Visitfo on Aerial Imagery (B7)  Water Stained Leaves (B9)  Field Observations:  Surface Water Present? Yes No Marker Table Present? Yes No Marker Capillary Imagery (B7)  Describe Recorded Data (stream gauge, moniformation)	Saft Crist (B*1) Aquatic invertebrates (B13) Hydrogen Sulfide Other (Ct) Dry-Seasor Water Table (CI2) Oxidized Rhizospheres on Tiving Roots (Ci) Where not (little) Presente of Reduced ron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)  V Dooth (inches) V Dooth (inches) V Depth (inches) V Depth (inches) V Depth (inches)	Surface Soil Cracks (B6)  Spendary Vegetated Concave Surface (B6)  Oralizage Relitems (B10)  Oxidizage Relitems (B10)  Oxidizat Relizabytheres on Uning Roots (C3)  (where tilled)  Creyfish Burrows (C8)  Saltzation Weible on Aerial Imagery (C9)  FAC-Neutral Test (D5)  Frost-Hoave Hummocks (O7) (LRR F)
Wetland Bydrology Indicators:  Erlimery Indicators (minimum of one required, s  Surface Water (A1)  High Wetler Table (A2)  Saluration (A3)  Veter Marks (B1)  Sodiment Deposits (B2)  Drift Deposits (B3)  Asgal Mat or Crust (B4)  Per Deposits (B5)  Intuitation Visitfo on Aerial Imagery (B7)  Water Stained Leaves (B9)  Field Observations:  Surface Water Present? Yes No Marker Table Present? Yes No Marker Capillary Imagery (B7)  Describe Recorded Data (stream gauge, moniformation)	Saft Crist (B*1) Aquatic invertebrates (B13) Hydrogen Sulfide Other (Ct) Dry-Seasor Water Table (CI2) Oxidized Rhizospheres on Tiving Roots (Ci) Where not (filled) Presente of Reduced ron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)  V Dooth (inches) V Dooth (inches) V Depth (inches) V Depth (inches) V Depth (inches)	Surface Soil Cracks (B6)  Spendary Vegetated Concave Surface (B6)  Oralizage Relitems (B10)  Oxidizage Relitems (B10)  Oxidizat Relizabytheres on Uning Roots (C3)  (where tilled)  Creyfish Burrows (C8)  Saltzation Weible on Aerial Imagery (C9)  FAC-Neutral Test (D5)  Frost-Hoave Hummocks (O7) (LRR F)
Wetland Bydrology Indicators:  Erlimery Indicators (minimum of one required, s  Surface Water (A1)  High Wetler Table (A2)  Saluration (A3)  Veter Marks (B1)  Sodiment Deposits (B2)  Drift Deposits (B3)  Asgal Mat or Crust (B4)  Per Deposits (B5)  Intuitation Visitfo on Aerial Imagery (B7)  Water Stained Leaves (B9)  Field Observations:  Surface Water Present? Yes No Marker Table Present? Yes No Marker Capillary Imagery (B7)  Describe Recorded Data (stream gauge, moniformation)	Saft Crist (B*1) Aquatic invertebrates (B13) Hydrogen Sulf de Odor (Ct) Dry-Season Water Table (C22) Oxidized Rhizospheres on ITving Roofs (Cwhere not filled) Presente of Reduced ron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)    Death (inches)	Surface Soil Cracks (B6)  Spendary Vegetated Concave Surface (B6)  Oralizage Relitems (B10)  Oxidizage Relitems (B10)  Oxidizat Relizabytheres on Uning Roots (C3)  (where tilled)  Creyfish Burrows (C8)  Saltzation Weible on Aerial Imagery (C9)  FAC-Neutral Test (D5)  Frost-Hoave Hummocks (O7) (LRR F)
Wetland Bydrology Indicators:  Erlimery Indicators (minimum of one required, s  Surface Water (A1)  High Wetler Table (A2)  Saluration (A3)  Veter Marks (B1)  Sodiment Deposits (B2)  Drift Deposits (B3)  Asgal Mat or Crust (B4)  Per Deposits (B5)  Intuitation Visitfo on Aerial Imagery (B7)  Water Stained Leaves (B9)  Field Observations:  Surface Water Present? Yes No Marker Table Present? Yes No Marker Capillary Imagery (B7)  Describe Recorded Data (stream gauge, moniformation)	Saft Crist (B*1) Aquatic invertebrates (B13) Hydrogen Sulfide Other (Ct) Dry-Seasor Water Table (CI2) Oxidized Rhizospheres on Tiving Roots (Ci) Where not (filled) Presente of Reduced ron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)  V Dooth (inches) V Dooth (inches) V Depth (inches) V Depth (inches) V Depth (inches)	Surface Soil Cracks (B6)  Spendary Vegetated Concave Surface (B6)  Oralizage Relitems (B10)  Oxidizage Relitems (B10)  Oxidizat Relizabytheres on Uning Roots (C3)  (where tilled)  Creyfish Burrows (C8)  Saltzation Weible on Aerial Imagery (C9)  FAC-Neutral Test (D5)  Frost-Hoave Hummocks (O7) (LRR F)
Wetland Bydrology Indicators:  Erlimery Indicators (minimum of one required, s  Surface Water (A1)  High Wetler Table (A2)  Saluration (A3)  Veter Marks (B1)  Sodiment Deposits (B2)  Drift Deposits (B3)  Asgal Mat or Crust (B4)  Per Deposits (B5)  Intuitation Visitfo on Aerial Imagery (B7)  Water Stained Leaves (B9)  Field Observations:  Surface Water Present? Yes No Marker Table Present? Yes No Marker Capillary Imagery (B7)  Describe Recorded Data (stream gauge, moniformation)	Saft Crist (B*1) Aquatic invertebrates (B13) Hydrogen Sulfide Other (Ct) Dry-Seasor Water Table (CI2) Oxidized Rhizospheres on Tiving Roots (Ci) Where not (filled) Presente of Reduced ron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)  V Dooth (inches) V Dooth (inches) V Depth (inches) V Depth (inches) V Depth (inches)	Surface Soil Cracks (B6)  Spendary Vegetated Concave Surface (B6)  Oralizage Relitems (B10)  Oxidizage Relitems (B10)  Oxidizat Relizabytheres on Uning Roots (C3)  (where tilled)  Creyfish Burrows (C8)  Saltzation Weible on Aerial Imagery (C9)  FAC-Neutral Test (D5)  Frost-Hoave Hummocks (O7) (LRR F)

WEILAND DETC	RIMINATION	DATA FORM	Great Plains Region
deanborne National Renewable	c Energy	V 205	den, JeHessen Sampling Date: 7/29
	_ L	oost relief (concave,	ange Sec OINE, TO45, R 700 convex, force, Command C Stope (96); S Long 105,1734°W Datum NAD 8
Map Unit Name: Englesioned - Urk climatic Phydrologic conditions on the site typical for	this time of year	r Yes / No_	(If no explain in Remarks)
Vegetation My Soil N, or Hydrology N	_ naturaty proble	ematic? (If n	"Normal Circumstances" present? Yes No No eeded, explain any answers in Remarks ;
IMMARY OF FINDINGS - Altach site ma	p showing s	ampling point	ocations, transects, important features, et
ydrophylic Vegetstion Present? ydnic Soil Present? etland I lydrology Present? Yes X	No .	Is the Sampler within a Wetla	1/
amarks: High Precip Year			
GETATION Use scientific names of pla	ınts.		
ee Stratum (Plot size 20		Dominant inglicator	Dominance Test worksheet
Solit amy gookides	40	N FACE	Number of Dominant Species That Are QRL, FACW, or FAC (excluding FAC+):  (A)
regulas deltoides	15	Y FAC-	Total Number of Dominant
upling/Shrub Stratum (Platisize: 7.5	60	Tutal Cover	Species Across All Strata: (a)  Percent of Dominant Speces That Ale O3L FACW, or FAC: \$3, 3 (A/S)
			Prevalence Indux workshoot.
			Total % Cover of: Must ply by
			DBL species x1=
			FACW species x2 =
	8-	Lotal Cover	FAC species x3-
rb Stratum (Plot size 5)	5:	N FACE	FACU species x 4 = UPL species 5 =
Juneus Terril	3	N FACW	Column Totals: (A) (B)
Circium arverse	20	Y FACH	
(Redrap) Agrest's sole	Hoy 5	N FAC	Prevalence Index = B/A =
Juneus bultieus		N DIBL	Hydrophytic Vegotation indicators:
Beamis Inermis	5	N NL	Prove ence Index is \$3.0'
Typha latatelia	20_	Y 013L	Morphological Adaptations' (Provide supporting
Cynoglossum officingle	- 120	N NO	data in Remarks or on a separate sheet)
Phalaris arundinaces	4 30,	Y FACE	№ Problemátic Hydrophytic Vegelation* (Explain)
octy Vine Stretum (Plot size:)	<u>-48</u> =1	ctal Cover	Indicators of hydric soil and wetland hydrology must be present, onless disturbed or problematic.
Parthenpeissus quinquefo	Liq 3	Y FAC	Hydrophylic Vegetation
Bare Ground in Heib Stratum		OLE CORD	Present? Yes No
marks:			

	933		Sampling Point MREL -
Profile Description: (Describe to the Death Males	depth needed to decument the Indicator or con Redex Features	firm the absence of	findicators.)
(inches) Color (moist) %	Color (moist) % Type Loc	Texture	Remerks
0-8 1048 3/2 10		c.5.4	many 200-15
8-14 10YR 2/1 10	o	C54	coarse sand
		-3	
		101	
10	RM=Reduced Malier, CS=Covered or Coated Sand		The second second second
Hydric Soll Indicators: (Applicable to			tion: P2-Prore Lining, Mr-Matrix. or Problematic Hydric Solis <sup>3</sup> :
Historial (A1)	Sancy Gleyed Mairix (G4)		ick (A9) (LRR I, J)
Histic Ecipadon (AZI	Sancy Review (55)	Coast P	raine Rodox (At6) (LRR F, G, H)
Black Histo (A3)	Stripped Matrix (S6)		rface (S7) (LRR G)
Hydregen Sulfide (A4) Stratified Layers (A5) (LBR F)	Loamy Mucky Minerel (F1) Learny Gleyed Metrix (F2)		ins Depressions (F16) Hi outside of MLRA 72 & 73)
1 cm Muck (A9) (LRR F, G, H)	Depleted Matrix (F3)		1 Vertic (F18)
Depteted Below Dark So:tave (A11)	Rodox Dark Surface (F6)	Red Far	ent Material (TF2)
Thick Dark Surface (A12)	பepleted Oark Surface (F7)		xplain in Roma ks)
Sandy Wucky Mineral (S1)	Redox Depressions (F9)		hydrophytic vegetation and
<ul> <li>2.5 cm Mucky Peat or Peat (S2) (ER</li> <li>5 cm Mucky Peat or Pear (S3) (ERR</li> </ul>			hydrology must be present. isturbed or problematic.
Restrictive Layer (if present):			
	1		
Type 10 - K /4566	×/7_		N/
	.4	Hydric Soll P	
Depth (Inches) 14 Remarks  Buried asp			
Type fork lasph.  Death (Inches)  Remarks  Buried asp	.4		
Type 10 K / 45 ft.  Death (Inches) 14  Remarks  Buried 45 ft.  TYPROLOGY  Watsand Hydrology Indicators:	chalt soil shows with	reducy o	droma.
Type fork /asph.  Depth (Inches)  Remarks  Buried asph.  IYDROLOGY  Wattern Hydrology Indicators:  Brignery Indicators (Inches)	thalf Soil shows with	reducy o	droma.
Type	thelt Soil shews  with  must sheek oil that applys  **Equal Crust (B11)	reducing a low	chroma.  Characters timinimum of two required in cool Cooks (86)
Type Oct 1856  Death (Inches) 1456  Remarks  Buried 456  Wattend Hydrology Indicators:  Brighery Indicators (Inginery (Inginery Indicators (Inginery (Inginery (Inginery (Inginer	medicheck of thet apply  New Cruet (B11)  Requeste Invertebrators (B13)	Sepondary N Surface N Surface N Surface	Characters (minimum of two required) to Soil Cracks (BB) ely Vegetated Concava Surface (BB)
Type	thelt Soil shews  with  must sheek oil that applys  **Equal Crust (B11)	Sepondary  Sepondary  Negrata  Mapara  Ventina	chroma.  Characters timinimum of two required in cool Cooks (86)
Type	must sheek oil that apply  Sall Crust (BI1)  Figuratic Invertobratos (B13)  M Hydrogen Sulfide Octor (C1)	Sepondary  Sepondary  N Surface  A Spranse  Control  Oxida	Chounters (minimum of two required) to Soil Cracks (B6) ety Vegetated Concave Surface (B8) to Soil Cracks (B10)
Type Ock (asph) Depth (inches)  Remarks  Buried q sp  Weltend Hydrology Indicators:  Prince Water (Ar)  Note High Water Table (A2)  Seturation (A2)  Water Marks (B1)  Setiment Deposits (B2)  Child Leposits (B3)	med sheek of thet apply)  Note that supply  Note	Several de la Contra de la Contra de	Characters (minimum of two required) the Soil Cracks (B6) ely Vegetaled Concave Surface (B8) tgc Palterrs (B10) tg Hinduspheres on Living Roots (C5) to (Blad) th Burrows (C8)
Type Ock (asphi) Depth (inches) 149 Remarks Burical asphi Wattend Hydrology Indicators: Primery Indicators (importun of vice result) Surface Water (Ar) M-High Water Tab of (A2) Y Seturation (A2) Y Seturation (A2) Y Water Marks (B1) Seturation (Deposits (B2) Y Dirth Usposits (B3) A Algel Mat or Crust (B4)	medi sheck eli thet apply)  Salt Crust (B11)  Toquetic Invertebrates (B13)  Mydrogen Sulfide Octor (C1)  M Dry-Boason Water Toblic (C2)  Water and tilled)  (Where not tilled)  Tresence of Reduced Iron (C4)	September V Surface  September V Surface  Oxida  September V Surface  V Surfa	Characters (minimum of two required) to Soil Cracks (86) ely Vegetaled Concave Surface (88) top Patterns (810) to tillad the Burrows (C8) than Visible on Aerial Imagery (C9)
Type	In ast, sheek oil that apply)  Sall Crust (B11)  Aquells Invertebrates (B13)  Mydrogen Sulfide Octor (C1)  Mydrogen of Reduced Iron (C4)  Mydrogen of Reduced Iron (C4)	Sepondary of a low Sepondary N Surface Sepondary Oxide Sepondary S	Cardia Tribans  Grown Q.  Clacicators (minimum of two required) to Soil Cracks (BB) the Vegetaled Concave Surface (BB) type Pallerns (B10) ed Miscospheres on Living Roots (CS) the Burrows (CB) than Visula on Aerial Imagery (CB) corplic Position (D2)
Type	In ast, sheek oil that apply)  Sall Crust (B11)  Aquells Invertebrates (B13)  Mydrogen Sulfide Octor (C1)  Mydrogen of Reduced Iron (C4)  Mydrogen of Reduced Iron (C4)	Sepondary  O low  Sepondary  N Surface  O surface  O conference  M Satura	cladicators (minimum of two required) to Soil Cracks (B6) ty Vegetated Concave Surface (B8) ty Vegetated Concave Surface (B8) ty Palletra (B10) and Filling Roots (C3) the tillind) shi Burrows (C8) thon Visible on Aerial Imagery (C9) orthic Position (D2) locatral Test (D5)
Type Oct Aspective Depth (inches)  Remarks  Burical Aspective Aspective Depth (inches)  Wattend Hydrology Indicators:  Primary Indicators information of Mechanism (Ar)  Surface Water (Ar)  Median Motor Table (A2)  Settration (A2)  Water Marks (B1)  Settiment Deposits (B2)  Water Marks (B1)  Settiment Deposits (B2)  Magal Mail or Crust (B4)  Minum Deposits (R5)  Minum Deposits (R5)  Minum Deposits (R5)  Water Stained Leaves (R5)	In ast, sheek oil that apply)  Sall Crust (B11)  Aquells Invertebrates (B13)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C2)  Mydrogen of Reduced Iron (C4)  My Thin Muck Surface (C7)	Sepondary  O low  Sepondary  N Surface  O surface  O conference  M Satura	Cardia Tribans  Grown Q.  Clacicators (minimum of two required) to Soil Cracks (BB) the Vegetaled Concave Surface (BB) type Pallerns (B10) ed Miscospheres on Living Roots (CS) the Burrows (CB) than Visula on Aerial Imagery (CB) corplic Position (D2)
Note that the second of the second second (inches)  Remarks:  Buried q = p  Western Hydrology Indicators:  Primary Indicators Information of the result  Surface Water (Ar)  And High Water Table (A2)  Seturation (A2)  Water Merks (B1)  J. Setument Deposits (B2)  William Deposits (B3)  A Algal Mator Crust (B4)  I from Deposits (B5)  I inundation Visible on Aerial Imagery  Water-Stained Leaves (B5)  Field Observations:	In act sheek oil that apply)  Sail Cruet (Bill)  A said Cruet (Bill)  A regardle Inventobrators (Bills)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C2)  Mydrogen Sulfide Octor (C2)  Mydrogen Sulfide Octor (C2)  Mydrogen Sulfide (C2)  Mydrogen Sulfide (C2)  Mydrogen Sulfide (C2)  Mydrogen Sulfide (C7)  Mydrogen (Cyptein in Remarks)	Sepondary  O low  Sepondary  N Surface  O surface  O conference  M Satura	cladicators (minimum of two required) to Soil Cracks (B6) ty Vegetated Concave Surface (B8) ty Vegetated Concave Surface (B8) ty Palletra (B10) and Filling Roots (C3) the tillind) shi Burrows (C8) thon Visible on Aerial Imagery (C9) orthic Position (D2) locatral Test (D5)
Type. O K / 45 ft.  Death (inches)	In ast, sheek oil that apply)  Sall Crust (B11)  Aquells Invertebrates (B13)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C2)  Mydrogen of Reduced Iron (C4)  My Thin Muck Surface (C7)	Sepondary  O low  Sepondary  N Surface  O surface  O conference  M Satura	cladicators (minimum of two required) to Soil Cracks (B6) ty Vegetated Concave Surface (B8) ty Vegetated Concave Surface (B8) ty Palletra (B10) and Filling Roots (C3) the tillind) shi Burrows (C8) thon Visible on Aerial Imagery (C9) orthic Position (D2) locatral Test (D5)
Type. O. K. A. S.	It add sheek eil thet apply)  Salt Crust (B11)  A Salt Crust (B11)  A Salt Crust (B11)  A Salt Crust (B11)  A Salt Crust (B13)  A Hydrogen Sulfide Octor (C1)  A Dry-Season Water Toble (C2)  A Salt Crust (B1)  A Salt Crust	Sepondary  O low  Sepondary  N Surface  O surface  O conference  M Satura	Chroma .  Chroma
Type	medi check eil thet apply)  Salt Crust (B11)  Figuetic Invertobretos (B13)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C2)  Water and tilled)  Thin Munk Surface (C7)  (B7)  No Depth (nathes): 5//  No Depth (inches): 5//  No Depth (inches): 7//	Several and Aparts  A Greyff  A Greyff  A Satura  A Geom  A Greyff  A Satura  A Geom  A Frost	Chroma .  Chroma
Type	In ask sheek oil that apply)  Salt Cruet (B1.1)  Aqualic Invertebrates (B13)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C2)  Mydrogen Sulfide (C2)  Mydrogen Sulfide (C2)  Mydrogen Sulfide (C7)  Mydrogen Sulfide (C7)  Mydrogen Sulfide (C7)  Mydrogen Sulfide (C7)  No Depth (inches): 5 //  No Depth (inches): 5 //  No Depth (inches): 3 //  Mydrogen Sulfide (C7)	Several and Aparts  A Greyff  A Greyff  A Satura  A Geom  A Greyff  A Satura  A Geom  A Frost	Chroma .  Chroma
Type	In ask sheek oil that apply)  Salt Cruet (B1.1)  Aqualic Invertebrates (B13)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C2)  Mydrogen Sulfide (C2)  Mydrogen Sulfide (C2)  Mydrogen Sulfide (C7)  Mydrogen Sulfide (C7)  Mydrogen Sulfide (C7)  Mydrogen Sulfide (C7)  No Depth (inches): 5 //  No Depth (inches): 5 //  No Depth (inches): 3 //  Mydrogen Sulfide (C7)	Several and Aparts  A Greyff  A Greyff  A Satura  A Geom  A Greyff  A Satura  A Geom  A Frost	Chroma .  Chroma
Type	In ask sheek oil that apply)  Salt Cruet (B1.1)  Aqualic Invertebrates (B13)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C2)  Mydrogen Sulfide (C2)  Mydrogen Sulfide (C2)  Mydrogen Sulfide (C7)  Mydrogen Sulfide (C7)  Mydrogen Sulfide (C7)  Mydrogen Sulfide (C7)  No Depth (inches): 5 //  No Depth (inches): 5 //  No Depth (inches): 3 //  Mydrogen Sulfide (C7)	Several and Aparts  A Greyff  A Greyff  A Satura  A Geom  A Greyff  A Satura  A Geom  A Frost	Chroma .  Chroma
Type	In ask sheek oil that apply)  Salt Cruet (B1.1)  Aqualic Invertebrates (B13)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C1)  Mydrogen Sulfide Octor (C2)  Mydrogen Sulfide (C2)  Mydrogen Sulfide (C2)  Mydrogen Sulfide (C7)  Mydrogen Sulfide (C7)  Mydrogen Sulfide (C7)  Mydrogen Sulfide (C7)  No Depth (inches): 5 //  No Depth (inches): 5 //  No Depth (inches): 3 //  Mydrogen Sulfide (C7)	Several and Aparts  A Greyff  A Greyff  A Satura  A Geom  A Greyff  A Satura  A Geom  A Frost	Chroma .  Chroma

WETLAND DETE	ERMINATION D	DATA FORM -	Great Plains Region	
Projectiste Lena Gulol/SEA	T STWOM	· · · · · · · · · · · · · · · · · · ·	Len. Jefferson Sampling Date: 7/29	109
Applicant/Owner: National Renewals				08
Investigators. Aven Braus, Beat				
Landform (hillslope, terrage, etc.): Fle column Tre	chandle oc	at relief (concave, c	convex none): CO-1 Co/4 C Slove (%): C	ξ.
Surregion (CRR) G- ( Wastern Great Plais				
Soil Mas Unit Name: Hoverson Low	am		Nivil classification:	
Are elimatic / hydrologic conditions on the site typical for		640304	(If no, explain in Remarks )	
Are Vegetation $N$ Sol $\overline{V}$ , or Hydrology $2$			Normal Circumstances' present? Yes No	_
Are vegetation	_ naturally problen	telic? (If ne-	eded, explain any answers in Remarks )	
SUMMARY OF FINDINGS - Attach site ma	ip showing sa	mpling point le	ocations, transects, important features, et	۵.
Hydrophytic Vegelation Present? Yes X	No			7
l tydric Soil Present? Yes ★	No	is the Sampled within a Wettan	Y	
Welland (lydrology Present) Yes X	No	Add in the Moderate		
Remarks: High Precip Year				1
6 , 6	1	g		1
Constructed				_}
VEGETATION – Use scientific names of pl		minent instigator i	Dotulnance Test worksheet:	Ŧ
Tree Stratum (Plot size:		ecies? States	Number of Dominant Species	+
1			Traf Are OBI , FACW or FAC (A) (excluding FAC+):	1
2			CONTRACTOR OF STREET, PROCESSAGE AND STREET	ļ -
4		*:-:	Total Number of Dominant Species Across All Strate	ř.
	_ <i>Ø</i> _=Te	stat Cover	Percent of Dominant Species // 7	
Sapking/Shrub Straium (Flot size: / 5 )			That Are OBL, l'ACW, or FAC:(A/U)	9
2			Prevalence Index worksheet:	
3			Total % Cover of Mint ply by:  OUL species x 1 =	
5.	<del>-</del> -		FACW species x2 =	i
F.	_Ø =To	stal Cover	FAC species x3=	
Herristatum (Plotsize: 5)	30	Y FACU	FACU species x 4 = UPL species x 5 =	ľ
2. Unk 40955 # 2-	- 5 -	1-1	Column Totals: (A) (B)	
3 Scarpus Dungeras	_ 10 _1	0131	Prevalence Index = 3/A =	
1 Palypage in syrtiensis	19 1	084	Hydrophytic Vegetation indicators:	1
5 Partitions Cult persua		V VI V FACH	Dominance Test is >50%	
7 Epuiserum acverse	$=$ $\vec{\tau}$ $\hat{\lambda}$	J FAC	Prevalence Index is \$3.0"	
8 Aloperary geniculares		V Cost	Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)	
9. Metilotus officialis		FACE	N Problemstic Hydrophytic Vegeration (Explain)	
18 Cony 24 Canadensis	- 101 -	V <u>FACU</u> lal Cover	W	
Woody Vinc Stretum (Plot size: 5')	W	N 1013 1 1013 1 11 11 11 11 11 11 11 11 11 11 11 11	Indicators of hydric soil and welland hydrology must be prosent, unless disturbed or problematic.	
1			Hydrophysic	1 .
2	Ø = Tel		Vegetation	į
% Bare Cround in Herb Stratum5_5			Present? Yes No	
Remarks:				
				1

Profits Description: (Describe to the depth needed to document the Indicator or confirm the absence of indicators.)  Popth Motive Medicators: (Applicable to See Case Indicators.)  Profits Case Invator See Case Indicators.)  Profits Case Invator See Case Indicators.)  Profits Case Invator See Case Indicators.)  Profit Case Indicators: (Applicable to all LIREs, unless otherwise noted.)  Profits Case Indicators: (Applicable to all LIREs, unless otherwise noted.)  Profit Case Indicators: (Applicable to all LIREs, unless otherwise noted.)  Profit Case Indicators: (Applicable to all LIREs, unless otherwise noted.)  Profit Case Indicators: (Applicable to all LIREs, unless otherwise noted.)  Profit Case Indicators: (Applicable to all LIREs, unless otherwise noted.)  Profit Case Indicators: (Applicable to all LIREs, unless otherwise noted.)  Profit Case Indicators: (Applicable to all LIREs, unless otherwise noted.)  Profit Case Indicators: (Applicable Indicator	SOIL		Sampling Point: NRE4 - C	8
Inches Capt month 56 Capt Motor 16, 19th 19th 19th 19th 19th 19th 19th 19th	121437—34—————————————————————————————————	needed to document the Indicator or confir		
Type: C-Carcourellon, D-Doptrian, FM-Recuped Maths, C3-Covered or Coated Send Grains,			* ************************************	
Type: U-Consciunation, D-Dependent, RAM-Recinect Methyl, CS-Convened or Coalded Stand Grains,				
Type: G-Consentration, D-Dopicion, RM-Recursed Matw., CS-Covered or Coated Steed Grains,	0-7 10 FR 313 80	718785/8 20 C M		
Hydric Soil indicators: [Applicable to all LRRs, unless otherwise noted.]  ## (Stock) (A1)  ## Sandy Cleyed Martix (S4)  ## Clear Soil Control (A3)  ## Clear Soil Control	1-20 10 YR 3/2 100 _		346	
Hydric Soil indicators: [Applicable to all LRRs, unless otherwise noted.]  ## (Stock) (A1)  ## Sandy Cleyed Martix (S4)  ## Clear Soil Control (A3)  ## Clear Soil Control			· <del>// / / / / / / / / / / / / / / / / / </del>	
Hydric Soil indicators: [Applicable to all LRRs, unless otherwise noted.]  ## (Stock) (A1)  ## Sandy Cleyed Martix (S4)  ## Clear Soil Control (A3)  ## Clear Soil Control		_ n		
Hydric Soil indicators: [Applicable to all LRRs, unless otherwise noted.]  ## (Stock) (A1)  ## Sandy Cleyed Martix (S4)  ## Clear Soil Control (A3)  ## Clear Soil Control				
Hydric Soil indicators: [Applicable to all LRRs, unless otherwise noted.]  ## (Stock) (A1)  ## Sandy Cleyed Martix (S4)  ## Clear Soil Control (A3)  ## Clear Soil Control	A 10 MARKET 1 10 MARKET 11 TO 10 MARKET 11 TO 10 MARKET 11 TO 10 MARKET 11 TO 10 MARKET 11 MARKE		· · · · · · · · · · · · · · · · · · ·	
Hydric Soil indicators: [Applicable to all LRRs, unless otherwise noted.]  ## (Stock) (A1)  ## Sandy Cleyed Martix (S4)  ## Clear Soil Control (A3)  ## Clear Soil Control	Union //- Consentration Di-Bordation SN-Sa	repeat Maloy CSoCoward or Costed Sand C	Preine 3 project: D1 shore Union MeMetrix	
Back Histic Epinedon (A2)  Black Histic (A2)  Black Histic (A3)  Black Histic (A4)  Brained Buyers (A5) (LRR F)  Committee (A4)  Brained Buyers (A5) (LRR F)  Committee (A8)  Bepleted Below Bark Surface (A11)  Bepleted Below Bark Surface (A11)  Black Burks (A3)  Bepleted Below Bark Surface (A11)  Brack Surface (A12)  Brandy Mucky Mareral (S1)  Brade Durk Surface (F7)  Brandy Mucky Mareral (S1)  Brade Durk Surface (F7)  Brade Durk				
Disks Histe (AS)	N Histord (A1)	N Sandy Gleyed Matrix (S4)	✓ 1 cm Muck (A9) (LRR I, J)	
Hydrology Sutfie (A)				
Statified Layers (AS) (LRR F)   Loang Gleyed Matrix (F2)   (LRR H unisted of MLRA 72 8.73)				
Communic (As) (LRR F, G, H)				
Depleted Briow Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Medox Oppressions (F13) Depleted Dark Surface (F7) Depleted Dark Dark Dark Surface (F7) Depleted Dark Dark Dark Dark Dark Dark Dark Dark	(1) <del>- 1 </del>			
Sandy Musky Mereal (S1)  2.5 cm. Wacky Peat or Peat (S2) (LRR G, H)  2.5 cm. Wacky Peat or Peat (S3) (LRR F)  8.6 cm. Marky Peat or Peat (S4) (LRR F)  8.6 cm. Marky Peat or Peat (S4) (LRR F)  8.6 cm. Marky Peat or Peat (S4) (LRR F)  8.6 cm. Marky Peat or Peat (S4) (LRR F)  8.6 cm. Marky Peat or Peat (S4) (LRR F)  8.6 cm. Marky Peat or Peat (S4) (LRR F)  8.6 cm. Marky Peat or Peat (S4) (LRR F)  8.6 cm. Marky Peat or Peat (S4) (LRR F)  8.6 cm. Marky Peat or Peat (S4) (LRR F)  8.6 cm. Marky Peat or Peat (S4) (LRR F)  8.6 cm. Marky Peat (S4) (LRR F)  8.7 cm.		Pedox (3+% (3)fface (+6)		
2.5 cm Mucky Peat or Peak (32) (LRR G, H)  Restrictive Layer (if present): Type:  Doch (Inches):  No  Doch (Inches):  Hydric soil Present? Yes No  Remarks: Soil pit day emiding reprint a Constructor of Lectical Short in Muck (81) Showing indicators:  Hydric soil Present? Yes No  No  Hydric soil Present? Yes No  Secondary Indicators:  Play Water Table (22) Apticate Shirty		11의 <del>- 1 - 1 - 1</del> - 11의 이번 시민들이 하면 하는 것이다. 이번 경기 경기를 받는 것이다.		
Miles districted or precise matter.   Miles districted or precise matter.				
Remarks: So.   pit day emid rip rep or a constructor color from S  Hydric Soil Present? Yes No				
Depth (inches): Hydric Soil Present? Yes No Remarks: Soil fit ding emild rights in a construct the Luctional Shoury indicators of reducing Conditions Luctional Luctional Luctional Shouring indicators: Secondary indicators: Secondary indicators: Secondary indicators (rimmum of one required check all that polity Secondary indicators (rimmum of one required check all that polity Secondary indicators (rimmum of two required): M. Surface Water (A1) Souristic (A2) Souristic (A2) Souristic (A2) Souristic (A2) Souristic (A2) Souristic (A3) Souristi	Restrictive Layer (if present):	The second secon		
Showing indicators:   Secondary Indicators:   Second		-		
Soil pit day emid hip to a constructed cuertical.  Showing indicates of reducing Conditions  Walland Hydrology indicators:  Prise any Indicators (Frinding of Note required check all that pools.  M. Surface Water (A1)  Soli Conid (B14)  Soli Conid (B14)  Soli Conid (B13)  Applied Soli Concis (B6)  M. Surface Water (A1)  Soli Conid (B14)  Soli Conid (B13)  Applied Concis (B13)  Drainage Fatterns (B16)  Drainage Fatterns (B16)  Codificat Rhizospheres on Living Roots (C3)  Where Marks (B1)  Dry Season Water Table (C2)  Soliment Deposts (B2)  Dry Season Water Table (C2)  Soliment Deposts (B2)  Agail Mot or Crust (B4)  Presence of Neduced Iron (C4)  Iron Deposts (B5)  Iron Deposts (B5)  Iron Deposts (B5)  Iron Deposts (B5)  Water States Liceves (B3)  Field Observations:  Surface Water Present?  Yes No Depth (inches)  Water Table Present?  Yes No Depth (inches)  Water Recorded State (stream gauge, monitoring well, perial phoras, previous inspections), if available.	Dopth (inches):	-	Hydric Soli Present? Yes No	
Wetland Hydrology Indicators:  Physical Indicators (minimum of one required check all that gooly)  Surface Water (A1)  Surface Water (A1)  Surface Water (A1)  Surface Soil Cracks (B6)  Wight Water Table (A2)  Water Marks (B1)  Dry-Season Water (C1)  Dry-Season Water Table (C2)  Sodiment Deposits (B2)  Dry-Season Water Table (C2)  Sodiment Deposits (B3)  Agal Matin Crust (B4)  Presence of Reduced Iron (C4)  Saturation Visible on Aerial Imagery (B7)  Water States (B6)  Presence of Reduced Iron (C4)  Sodiment Deposits (B5)  Agal Matin Crust (B4)  Presence of Reduced Iron (C4)  Iron Deposits (B5)  Thin Muck Surface (C7)  Geomorphic Position (D2)  Inundation Visible on Aerial Imagery (B7)  Water States (B6)  Water Marks (B6)  Secondary Vegetated Conceive Surface (B8)  Creytish Humanics (C8)  Seturation Visible on Aerial Imagery (C9)  Frost Heave Humanicks (D7) (LRR F)  Fleld Observations:  Surface Water Present?  Yes No Depth (Inches)  Water Table Present?  Yes No Depth (Inches)  Water Table (Present? Yes No Depth (Inches)  Describe Recorded Data (stream gauge, monitoring well, scrill phoros, previous inopections), if available.	Drowing indication	15 of reducing cond	Tions	
### Phis ary Indicators (**Trimmum of one required check, all that pools'    Surface Water (A1)				
Surface Water (A1)		Nick all that cooks	Seconds to leutrodies (culculation of the terrained)	
## High Water Table (A2) Aduatic Invertebrales (B12) Sparse y Vegetated Concave Surface (B8)  ## Advanced Nation (A3) Hydrogen Sulface Obes (C1) Drainage Patterns (B10)  ## Water Marks (B1) Dry Season Wilder Table (C2) Oxidized Rhizospheres on Living Roots (C3)  ## Dry Season Wilder Table (C2) Oxidized Rhizospheres on Living Roots (C3)  ## Deposits (B3) Oxidized Rhizospheres on Living Roots (C3)  ## Deposits (B3) Oxidized Rhizospheres on Living Roots (C3)  ## Presence of Reduced Iron (C4) Seturation Visible on Aerial Imagery (C9)  ## Proposits (B5) Thin Mark Surface (C7) Geomorphic Position (U2)  ## Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) ## AC-Neutral 1ee (C6)  ## Water Statisted Leaves (B2)  ## Frost Heave Hummocks (D7) (LRR F)  ## Frost Heave Hummocks (D7) (LRR F)  ## Water Table Present? Yes No Depth (Inches)  ## Water Table Present? Yes No Depth (Inches)  ## Water Table Present? Yes No Depth (Inches)  ## Depth (Inches) Worland Hydrology Present? Yes No Depth (Inches)  ## Describe Recorded Data (Stream gauge, Inchelloting well, scrilal phoros, previous inopections), if available.				
M Saturation (A3) Hydrogen Sulface Odos (C1) Drainage Patterns (B10)  Mater Marks (B1) Dry-Season Water Table (C2) Cxidized Rhizospheres on Living Roots (C3)  Sediment Deposts (B2) Diddized Rhizospheres on Living Roots (C3) (where tilled)  Dry Season Water Table (C2) Cxidized Rhizospheres on Living Roots (C3)  Por Deposits (B3) (where not Blied) Creytish Rumaws (C8)  Agal Matin Crust (B4) Presence of Reduced Iron (C4) Seburation Visible on Aerial Imagery (C9)  Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) FAC-Neutral Dee (15)  Water Statised Leaves (B9)  Field Quarvations:  Surface Water Present? Yes No Depth (inches):  Water Table Present? Yes No Depth (inches)  Water Table Present? Yes No Depth (inches)  Water Table Present? Yes No Depth (inches)  Describe Recorded Data (stream gauge, monitoring well, serial phoros, previous inspections), if available.			- 19 <sup>11年</sup> (日本の日の2月 19月 日本の日の19月 19月 19月 19月 19月 19月 19月 19月 19月 19月	
Soldiment Deposits (82)  Diditized Rhizospheres on Living Brids (C3)  (where titled)  Or 0 Deposits (83)  Algal Matin' Crust (84)  Presence of Reduced Iron (C4)  Saturation Mistille on Aerial Imagery (C9)  Iron Deposits (85)  Inundebon Visible on Aerial Imagery (87)  Water Statised Leaves (89)  Field Quaervations:  Surface Water Present?  Yos  No  Depth (inches):  Water Table Present?  Yes  No  Depth (inches)  Wotland Hydrology Present?  Yes  No  Depth (inches)  Describe Recorded Data (stream gauge, monitoring well, scrial phoros, previous inspections), if available.	(1) - 10 - 10 - 10 - 10 - 10 - 10 - 10 -		가 위에게 있어요요? (1924년) 2명에 가입니다 (1921년) 2명에 가입니다 (1921년) 1일 (1921년)	
Agal Matin Crust (B4)   Creytish Hurrows (C8)     Agal Matin Crust (B4)   Presence of Reduced Iron (C4)   Seturation Visible on Agrial Imagery (C9)     Iron Deposits (B5)   Thin Muck Surface (C7)   Geomorphic Position (D2)     Inundation Visible on Agrial Imagery (B7)   Other (Explain in Resnarks)   FAC-Neutral Des (D5)     Water Statised Ecoves (B9)   Frost Heave Hummocks (D7) (ERR F)     Field Observations:   Surface Water Present?   Yes   No   Depth (Inches)     Water Table Present?   Yes   No   Depth (Inches)   Wotland Hydrology Present?   Yes   No     (Includes opalitary Image)   Describe Recorded Data (stream gauge, monitoring well, scrial phoros, previous inopections), if available.	Water Marks (B1)	Dry-Season Water Table (C2)	<ul> <li>Cxidized Rhizospheres on Living Roots (C3)</li> </ul>	
Agal Matior Crust (B4)	Sodiment Deposits (82)	<ul> <li>Dxldized Rhizospheres on Hwng Brists</li> </ul>	Fig. 12 (6) (6) (7) (7)	
Pron Deposits (B5)		기존에 하게 하는 이 사용하면 하지만 하기 하기 보다면서 보다면서 보다.		
Inundebon Visible on Aerial Imagery (B7)		Historian of Deducari Iron III AV	<ul> <li>Saturation Visible on Agricl Imagery (C9)</li> </ul>	
Water State of Leaves (89)  Frost-Heave Hummocks (07) (LRR F)  Field Quarvations:  Surface Water Present? Yes No Depth (inches):  Water Table Present? Yes No Depth (inches)  Salvration Present? Yes No Depth (inches)  Wotland Hydrology Present? Yes No Depth (inches)  Describe Recorded Data (stream gauge, monitoring well, serial phores, previous inspections), if available.	Algal Mat or Crust (B4)	<del> </del>		
Field Observations:  Surface Water Present? Yes No Depth (inches):  Water Table Present? Yes No Depth (inches)  Salvation Fresent? Yes No Depth (inches)  Watland Hydrology Present? Yes No Depth (inches)  Describe Recorded Data (stream gauge, monitoring well, serial phoros, previous inspections), if available.		Thin Muck Surface (C7)	Geomorphic Hositian (D2)	
Water Table Present? Yes No Depth (indies)  Salvration Present? Yes No Depth (indies) Wotland Hydrology Present? Yes No Depth (indies) Oescribe Recorded Data (stream gauge, monitoring well, serial phores, previous inspections), if available.	Agal Matin' Crust (B1) I'ran Deposits (B5) Inundebon Visible on Aerial Imagery (B7)	Thin Muck Surface (C7)	Geomorphic Position (U2)  FAC>Neutral Te   (Cb)	
Saluration Present? Yes No Depth (inches) Wotland Hydrology Present? Yes No Depth (inches) Wotland Hydrology Present? Yes No Describe Recorded Data (stream gauge, monitoring well, serial phoros, previous inspections), if available.		Thin Muck Surface (C7)	Geomorphic Position (U2)  FAC>Neutral Te   (Cb)	
(Michides capillary Innge) Describe Recorded Data (stream gauge, monitoring well, serial phoros, previous inspections), if available.	— Agal Mat or Crust (B1)  — Iron Deposits (B5)  — Inundebon Visible on Aerial Imagery (B7)  Water Stringer Leaves (B9)  Field Observations:	Thin Muck Surface (C7) Other (Explain in Remarks)	Geomorphic Position (U2)  FAC>Neutral Te   (Cb)	
Describe Recorded Data (stream gauge, monitoring well, serial phores, previous inspections), if available.	Agal Mat or Crust (B4) Pron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water States Leaves (B9) Field Observations: Surface Water Presont? Yos No- Water Table Present? Yes No-	Thin Muck Surface (C7) Other (Explain in Remarks)  Depth (inches): Depth (inches)	Geomorphic Position (U2)  FAC>Neutral Te   (Cb)	
	Agal Mat or Crust (B4)  Iron Deposits (B5)  Inundation Visible on Aerial Imagery (B7)  Water Stained Leaves (B9)  Field Observations:  Surface Water Present? Yes No Water Table Present? Yes No Salvration Present? Yes No Salvration Present?	Thin Muck Surface (C7) Other (Explain in Remarks)  Depth (inches): Depth (inches)	Geomorphic Position (D2) FAC-Neutral Tiest (156) Frast-Heave Huminocks (D7) (LRR F)	
Remarks.	Agal Mat or Crust (B4) Iron Deposits (B5) Inundebon Visible on Aerial Imagery (B7) Water Statuest Leaves (B9) Field Observations: Surface Water Presont? Yos No Water Table Present? Yes No Salaration Present? Yes No (Includes capillary finge)	Thin Muck Surface (C7)  Other (Explain in Remarks)  Depth (inches):  Depth (inches)  Depth (inches)  Wotte	Geomorphic Position (D2)  FAC-Neutral Test (D5)  Frast-Heave Hummocks (D7) (LRR F)  and Hydrology Present? Yes X No	**
	Agal Mat or Crust (B4)  Iron Deposits (B5)  Inundation Visible on Aerial Imagery (B7)  Water Stateset Leaves (B3)  Field Observations:  Surface Water Preson!? Yos No Water Table Present? Yes No Saleration Present? Yes No (Includes capillary frage)	Thin Muck Surface (C7)  Other (Explain in Remarks)  Depth (inches):  Depth (inches)  Depth (inches)  Wotte	Geomorphic Position (D2)  FAC-Neutral Test (D5)  Frast-Heave Hummocks (D7) (LRR F)  and Hydrology Present? Yes X No	超
	Agai Matin Crust (B4) Pron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water Stainest Leaves (B9) Field Observations: Surface Water Preson!? Yos No Water Table Present? Yes No Saturation Present? Yes No Saturation Present? Yes No Checklodes capitlary Image) Describe Recorded Data (stream gauge, monitor	Thin Muck Surface (C7)  Other (Explain in Remarks)  Depth (inches):  Depth (inches)  Depth (inches)  Wotte	Geomorphic Position (D2)  FAC-Neutral Test (D5)  Frast-Heave Hummocks (D7) (LRR F)  and Hydrology Present? Yes X No	揺
	Agai Matin Crust (B4) Pron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water Stainest Leaves (B9) Field Observations: Surface Water Preson!? Yos No Water Table Present? Yes No Saturation Present? Yes No Saturation Present? Yes No Checklodes capitlary Image) Describe Recorded Data (stream gauge, monitor	Thin Muck Surface (C7)  Other (Explain in Remarks)  Depth (inches):  Depth (inches)  Depth (inches)  Wotte	Geomorphic Position (D2)  FAC-Neutral Test (D5)  Frast-Heave Hummocks (D7) (LRR F)  and Hydrology Present? Yes X No	M
	Agai Matin Crust (B4) Pron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water Stainest Leaves (B9) Field Observations: Surface Water Preson!? Yos No Water Table Present? Yes No Saturation Present? Yes No Saturation Present? Yes No Checklodes capitlary Image) Describe Recorded Data (stream gauge, monitor	Thin Muck Surface (C7)  Other (Explain in Remarks)  Depth (inches):  Depth (inches)  Depth (inches)  Wotte	Geomorphic Position (D2)  FAC-Neutral Test (D5)  Frast-Heave Hummocks (D7) (LRR F)  and Hydrology Present? Yes X No	超
	Agal Mat or Crust (B4)  Iron Deposits (B5)  Inundation Visible on Aerial Imagery (B7)  Water Stateset Leaves (B3)  Field Observations:  Surface Water Preson!? Yos No Water Table Present? Yes No Saleration Present? Yes No (Includes capillary frage)	Thin Muck Surface (C7)  Other (Explain in Remarks)  Depth (inches):  Depth (inches)  Depth (inches)  Wotte	Geomorphic Position (D2)  FAC-Neutral Test (D5)  Frast-Heave Hummocks (D7) (LRR F)  and Hydrology Present? Yes X No	45

WETLAND DETE	ERMINATIO	N DATA FORM	- Great Plains Region
mediane Leng Guleh Swad JE	EA STA	CHINGSON GO	den, Jefferson sampling Dala 7/29/08
oplicant/Owner Netional Renewa	6/e E.	ever Lab	State CO Sampling Point NFEL-U9
vestigatoria) Ryan, Breus, Beatty Wa	· · ·	Section, Township, R.	ange Sec INE, TOYS, RTOW
andform (hillslope, termon, ald.) D, 724	- V	_osal relief (concave	convectioner: Concave Slope (%): 2
	/	5097400E 557 - 500	_ cmc -105.1754°W Zatum NAD.SC3
oil Mao Unit Name: <u>Den Kerr Urbar</u> a			
re climetic / hydrologic conditions on the site typical for $\frac{d}{dt}$			
re Vegetation <u>M</u> Soil <u>AL</u> or Hydrology <u>N</u> re Vegetation <u>N</u> Soil <u>N</u> , or Hydrology <u>N</u>	sign ficantly	disturbed? Are	"Normal Circumstances" present? Yes No
JUMMARY OF FINDINGS - Attach site ma	p showing	sampling point	locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yos	No X	is the Sample	d Area
Hydric Soil Present?  Wetland Hydrology Present?  Yes  Yes	No X	within a Wetla	and? Yes No X
Dame to	No		- 4 0 <del></del>
High Precip Year			
EGETATION - Use scientific names of pl	ants.		
7.0	Absolute	Commant Indicator	Dominance Test workshoot:
Iree Stratum (Plox size) / / /)	% Cover	"Seccies? Status	Number of Commant Species That Are CBL, I ACW, or FAC
			(excluding FAS -).
3			Total Number of Dominant
t	~		Species Across All Strate: (3)
Sapiing/Shrub Stratum (Plot size: 10	-,0_	_= Inta Cloves	Percent of Dominam Species That Are OBL, FACW, or FAC: 3 (A/B)
Bledson trucanteros		Y FAC	
PROSN Woodszi	, \	N FACIL	Prevalence Index worksheet:  Total % Cover of Multiply by
-			DRI spaces x1=
i	- 100000 000000000000000000000000000000		* ACW species x 2
1	6	= Total Cover	FAC spacies x 3 -
amoum tacing caulum	65	1 FACH	FACU species X4
Allina Vineas	20	Y FROM	Column Totas: (A) (B)
CODYAR COMADENSIS	# 5°	N FACULT	Prevalence index = B/A =
Ambosia artemaniania	<u>- 21</u>	W wel.	Hydrophytic Vegetation Indicators:
monsia attenuaciónia		N THOU	N Dominance Fest is >5.3%
			** Prevalence Index is £3.0°
			Morphotogoal Adaptations' (Provide supporting data in Remarks or on a separate sheet)
			Froblematic Hydrophytic Vegetation (Explain)
	90	Total Cover	
(docty Vene Strutum (Flot size: 5 )		TOTEL COSE	Indicators of hydric soit and wetland hydrology must be present unless disturbed or problematic.
			Hydrophylle
Bare Ground in Herb Stretum 5	0	- Yotal Cover	Vegetation Present/ Yes No X
emarks			

Depth (Valnx (inches) Coto; (noist) % (0 - 2.2. 10 \ R3/2 100	h needed to document the indicator or confirm  Redox Faelures  Color (most) % yest the	Texture Remarks
	Color (molst) % Type' Log	exture Remarks
0-12. 10 KNA 100		1 C 1 - 1 - 1
		LSoy & Leavy sand
	<del></del>	
····		(2 18) ( <del>1 (2 18) 4 (2 18)</del>
		v <del>a</del>
Type: C=Conce Winting D=Deutchon RM=	Heduced Matrix, CS=Covered or Coaled Sand G	rains. *Localion: PL=Fore Lining, M=Matrix.
Hydric Snill Indicators: (Applicable to all I		Indicators for Problematic Hydric Soils <sup>3</sup> :
N H slosal (A1)	N Sandy Gleyed Matrix (S4)	N 1 cm Muck (A9) (LRR I, J)
+ Histo Epipedon (A2)	Sandy Redox (S5)	Coast Praine Recox (A16) (LRR F, G, H)
Black Histo (A3) Hydrogen Sulfide (A4)	Skapped Metrix (S6) Loamy Musky Mineral (F1)	Dark Surface (S7) (LRR G)  (lich Plains Depressions (F16)
Stratmed Layers (A5) (LRR F)	Laamy Gleyed Melcix (F2)	(I, RR H real-side of MLRA 77 & 73)
1 cm Minck (AE) (LRR F, G, H)	Depleted Matrix (F3)	Reduced Vertic (F18)
Depleted Relow Dark Surface (A11) Thick Dark Surface (A12)	Redox Dark Surface (FR) Deplated (Qnk Surface (FR)	Red Parent Material (TF2)  Cther (Explain in Remarks)
I Sendy Mucky Mnorai (S1)	Redox Degressions (F8)	Indicators of hydrophytic vagetation and
2.5 cm Weeky Peat or Peat (S2) (LRR G		wetland by kinkeyy must be present,
Estrictive Layer (if present):	(MLRA /2 & /3 of LRR H)	uniess disturced or problematic.
Type: NA		
Depth (inches)		Hydric Soll Present? Yes No X
HYDROLOGY		
HYDROLOGY	check ell that apply(	Secondary indicators (minimum of two required)
HYDROLOGY  Wetland Hydrology Indicators:  Phonary Indicators (minimum or one required  Minimum Surface Water (A1)	Sell Crust (B11)	A Surface Soil Cracks (BB)
HYDROLOGY  Welfand Hydrology Indicafors:  Primary Indicafors (minimum of one required  Surface Water (A1) High Water Seble (A2)	Self Crust (B11) Aquado Invertebra(es (B13)	Surface Golf Cracks (BB)   Surface (BB)     Surface Vegetated Concave Surface (BB)
HYDROLOGY  Wattand Hydrinlogy Indicators:  Primary Indicators (milinam of one required  '' Surface Water (A1)  High Water 5 able (A2)  Saturation (A3)	Sell Crust (B11)	A Surface Soil Cracks (BB)
HYDROLOGY  Welfand Hydrology Indicafors:  Primary Indicafors (minimum of one required  Surface Water (A1) High Water Seble (A2)	5ell Crust (B11) Aquado Invertebrates (B13) Hydrogen Sulfide Odor (C1)	A Surface Soil Crocks (198)   Surface (198)   Surface (198)   D ainege Hatterns (1910)   Oxidized Rhizosoneres on Living Roots (C3)   (where titled)
HYDROLOGY  Wetland Hydrology Indicators:  Phonery Indicators (minimum of one required  ✓ Surface Water (A1)  High Water 5 db e (A2)  Saturet on (A3)  Water Marks (B1)  Sediment Doposits (32)  ✓ John Deposits (B3)	A Sell Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Oddr (C1) Dry Season Waller Tribin (C2) Oxidized Rhizosphores on Living Roofs (where not tilled)	A Surface Sail Cracks (B6) Surface Sail Cracks (B6) D ainsign Fatterns (B10) Oxidated Rhizospheres on Living Roots (C3) (C3) (where ifflied) Orayfish Rumaws (C6)
Wetland Hydrology Indicators:  Phonary Indicators (minimum or one required  Maurace Water (A1)  High Water 5 eb e (A2)  Saturation (A3)  Water Marks (B1)  Sediment Doposits (32)  Maximum Mater Crust (F4)	A Sell Crust (B11) Aquado Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dry-Season Waller Trible (C2) Oxidized iRhizosphores on Living Roofs (where not tilled) Presence of Reduced Iron (C4)	Surface Sail Cracks (B6)   Surface (B8)   Surface (B8)   Dianage Patterns (B10)   Oxideed Rhizospaces on Living Roots (C3)   (where tilled)   Crayfish Rumous (C6)   Saturation visible on Agrial Imagery (C9)
Wetland Mydrintogy Indicators:  Propary Indicators (minimum of one required  Mydrane Water (A1)  High Water 5 eb e (A2)  Saturation (A3)  Water Marks (B1)  Sediment Duposits (32)  Mydri Mat or Clust (R4)  Ton Deposits (B5)	A Sell Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sollide Older (C1) Dry-Season Walter Tribin (C2) Oxidized Rhizosphores on Living Roots (where not tilled) Presence of Reduced Iron (C4) Thin Muck Burface (C2)	A Surface Sail Cracks (B6) Surface Sail Cracks (B6) D ainsign Fatterns (B10) Oxidated Rhizospheres on Living Roots (C3) (C3) (where ifflied) Orayfish Rumaws (C6)
HYDROLOGY  Wetland Hydrology Indicators:  Phonary Indicators (minimum or one required  **Y Surface Water (A1)  High Water 5 she (A2)  Saturation (A3)  Water Marks (B1)  Sediment (biposits (32)  **Minimum Marks (B3)  Agai Mat or Crust (B4)	A Sell Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sollide Older (C1) Dry-Season Walter Tribin (C2) Oxidized Rhizosphores on Living Roots (where not tilled) Presence of Reduced Iron (C4) Thin Muck Burface (C2)	A Surface Skil Cracks (B6) Surface Skil Cracks (B6) D ainage Patterns (B10) Oxided Rhizosoneres on Living Roots (C3) (where iffled) Crayfish Rumons (C6) Saturation Visible on Agrial Imagery (C9) Coomarphic Position (D2)
HYDROLOGY  Wetland Hydrinogy Indicators:  Primary Indicators (minimum of one required  "Surface Water (A1)  High Water 3 able (A2)  Saturation (A3)  Water Marks (B1)  Sediment Burposits (32)  "Ont Deposits (B3)  Algai Mat or Clust (B4)  Ton Deposits (S5)  Inundation Visible on Perial Imagery (B7)	A Sell Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sollide Older (C1) Dry-Season Walter Tribin (C2) Oxidized Rhizosphores on Living Roots (where not tilled) Presence of Reduced Iron (C4) Thin Muck Burface (C2)	A Surface Sail Cracks (BB) Surface Sail Cracks (BB) D sinega Hatterns (BB) D sinega Hatterns (BB) Coulded Rhizosoneres on Living Rooks (C3) (where illied) Crayfish Rumans (C6) Soturation Visible on Aerial Imagery (C9) Coomorphic Position (C2) CAC-Noutral Test (C5)
HYDROLOGY  Wettand Hydrintogy Indicators:  Promary Indicators (minimum or one required  M Surface Water (A1)  High Water 5 able (A2)  Saturet or (A2)  Water Marks (B1)  Sediment Duposits (32)  Mai Motor Clust (R4)  ron Deposits (B5)  mundation visible or Perial imagery (B7, Water-Stained Leaves (B9)  Field Obsorvations:  Surface Water Present? Yes N	A Sell Crust (B11) Aquatic Invertebrates (B13) Hydroger Sulfide Oddr (C1) Dry Season Walter Tishia (C2) Oxidized Rhizosphores on Living Roofs (where not tilled) Presence of Reduced Iron (C4) Thin Muck Burface (C2) Other (Explain in Remarks)  Depth (Inchas)	A Surface Sail Cracks (BB) Surface Sail Cracks (BB) D sinega Hatterns (BB) D sinega Hatterns (BB) Coulded Rhizosoneres on Living Rooks (C3) (where illied) Crayfish Rumans (C6) Soturation Visible on Aerial Imagery (C9) Coomorphic Position (C2) CAC-Noutral Test (C5)
HYDROLOGY  Wetland Hydrintogy Indicators:  Primary Indicators (minimum or one required  // Surface Water (A1)  High Water 3 able (A2)  Saturation (A3)  Water Marks (B1)  Sediment Duposits (32)  // Indicators (B3)  Algai Mat or Clust (B4)  ron Deposits (B5)  minimation Visible on Aeriel Imagery (B7)  Water-Stalned Leaves (B8)  Field Observations:  Surface Water Present?  Water-Table Present?  Water-Table Present?  Yes N	A Sell Crust (B11) Aquado Invertebretes (B13) Hydroger Sulfide Odor (C1) Dry Season Waller Turbie (C2) Oxidized iRhizosphores on Living Roots (where not tilled) Presence of Reduced Iron (C4) Thin Muck Burface (C2) Other (Explain in Remarks)  Death (notics)  Death (notics)	Surface Soil Cracks (B6)     Surface Soil Cracks (B6)     Surface Soil Cracks (B6)     D ainage Patterns (B10)     Chazed Rhopspheres on Living Roots (C3)     (where illied)     Crayfish Rumans (C6)     Saturation Visible on Aerial Imagery (C9)     Geomorphic Position (D2)     CAC-Neutral Test (C5)     Frost-Henve Francocks (D7) (LRR f)
HYDROLOGY  Wetland Hydrinogy Indicators:  Primary Indicators (minimum or one required  "Surface Water (A1)  High Water 3 able (A2)  Saturation (A3)  Water Marks (B1)  Sediment, Burposits (32)  "Ont Deposits (B3)  Algai Mart or Clust (B4)  ron Deposits (B5)  numidation Visible on Perial Imagery (B7)  Water-Stalned Leaves (B9)  Field Obsorvations:  Surface Water Present? Yes N  Water Table Present? Yes N  Saturation Present? Yes N	A Sell Crust (B11) Aquado Invertebretes (B13) Hydroger Sulfide Oddr (C1) Dry-Season Waller Tichie (C2) Oxidized ithizosphores on Living Roofs (where not tilled) Presence of Reduced Iron (C4) Thin Muck Burface (C2) Other (Explain in Remarks)  Death (not as) Death (not as)	A Surface Sail Cracks (BB) Surface Sail Cracks (BB) D sinega Hatterns (BB) D sinega Hatterns (BB) Coulded Rhizosoneres on Living Rooks (C3) (where illied) Crayfish Rumans (C6) Soturation Visible on Aerial Imagery (C9) Coomorphic Position (C2) CAC-Noutral Test (C5)
HYDROLOGY  Wettand Hydrintogy Indicators:  Primary Indicators (minimum of one required  M Surface Water (A1)  High Water 5 able (A2)  Saturation (A2)  Water Marks (B1)  Sediment Duposits (32)  Indicators (B3)  Agai Mat or Crust (R4)  Ton Deposits (B5)  Inundation Visible or Aeriel Imagery (B7)  Water-Stained Leaves (B9)  Field Obsorvations:  Surface Water Present? Yes N  Water Table Present? Yes N  Saturation (Present? Yes N	A Sell Crust (B11) Aquado Invertebretes (B13) Hydroger Sulfide Odor (C1) Dry Season Waller Turbie (C2) Oxidized iRhizosphores on Living Roots (where not tilled) Presence of Reduced Iron (C4) Thin Muck Burface (C2) Other (Explain in Remarks)  Death (notics)  Death (notics)	Surface Sail Cracks (B6)   Surface Sail Cracks (B6)   Dianegs Fatterns (B10)   Oxidated Rhuzospheres on Living Roots (C3)   (where itilitied)   Oreyfish Rumans (C6)   Saturation Visible on Aerial Imagery (C9)   Coomcophic Position (D2)   CAC-Neutral Text (C5)   Frost-Heave Purminocks (D7) (LRR F)
HYDROLOGY  Wettand Hydrintogy Indicators:  Primary Indicators (minimum of one required  M Surface Water (A1)  High Water 5 able (A2)  Saturation (A2)  Water Marks (B1)  Sediment Duposits (32)  Indicators (B3)  Agai Mat or Crust (R4)  Ton Deposits (B5)  Inundation Visible or Aeriel Imagery (B7)  Water-Stained Leaves (B9)  Field Obsorvations:  Surface Water Present? Yes N  Water Table Present? Yes N  Saturation (Present? Yes N	A Sell Crust (B11) Aquatic Invertebrates (B13) Hydroger Sulfide Oddr (C1) Dry Season Water Tahle (C2) Oxidized Rhizosphores on Living Roofs (where not tilled) Presence of Reduted Inn (C4) Thin Muck Burface (C2) Other (Explain in Remarks)  Depth (Inches).  Depth (Inches). Weth	Surface Sail Cracks (B6)   Surface Sail Cracks (B6)   Dianegs Fatterns (B10)   Oxidated Rhuzospheres on Living Roots (C3)   (where itilitied)   Oreyfish Rumans (C6)   Saturation Visible on Aerial Imagery (C9)   Coomcophic Position (D2)   CAC-Neutral Text (C5)   Frost-Heave Purminocks (D7) (LRR F)
HYDROLOGY  Wettand Hydrintogy Indicators:  Primary Indicators (minimum of one required  M Surface Water (A1)  High Water 5 able (A2)  Saturation (A2)  Water Marks (B1)  Sediment Duposits (32)  Indicators (B3)  Agai Mat or Crust (R4)  Ton Deposits (B5)  Inundation Visible or Aeriel Imagery (B7)  Water-Stained Leaves (B9)  Field Obsorvations:  Surface Water Present? Yes N  Water Table Present? Yes N  Saturation (Present? Yes N	A Sell Crust (B11) Aquatic Invertebrates (B13) Hydroger Sulfide Oddr (C1) Dry Season Water Tahle (C2) Oxidized Rhizosphores on Living Roofs (where not tilled) Presence of Reduted Inn (C4) Thin Muck Burface (C2) Other (Explain in Remarks)  Depth (Inches).  Depth (Inches). Weth	Surface Sail Cracks (B6)   Surface Sail Cracks (B6)   Dianegs Fatterns (B10)   Oxidated Rhuzospheres on Living Roots (C3)   (where itilitied)   Oreyfish Rumans (C6)   Saturation Visible on Aerial Imagery (C9)   Coomcophic Position (D2)   CAC-Neutral Text (C5)   Frost-Heave Purminocks (D7) (LRR F)
HYDROLOGY  Wetland Mydrintogy Indicators:  Primary Indicators (minimum or one required  // Surface Water (A1)  High Water 5 able (A2)  Saturation (A3)  Water Marks (B1)  Sediment Disposits (32)  // Middle Disposits (B3)  // Maja Mat or Clust (R4)  for Deposits (B5)  mundation Visible on Aeriel Imagery (B7)  Water-Stained Leaves (B9)  Field Observations:  Surface Water Present? Yes N  Water Table Present? Yes N  Conditions resulting lings)  Describe Recorded Data (stream gauge, mon	A Sell Crust (B11) Aquatic Invertebrates (B13) Hydroger Sulfide Oddr (C1) Dry Season Water Tahle (C2) Oxidized Rhizosphores on Living Roofs (where not tilled) Presence of Reduted Inn (C4) Thin Muck Burface (C2) Other (Explain in Remarks)  Depth (Inches).  Depth (Inches). Weth	Surface Sail Cracks (B6)   Surface Sail Cracks (B6)   Dianegs Fatterns (B10)   Oxidated Rhuzospheres on Living Roots (C3)   (where itilitied)   Oreyfish Rumans (C6)   Saturation Visible on Aerial Imagery (C9)   Coomcophic Position (D2)   CAC-Neutral Text (C5)   Frost-Heave Purminocks (D7) (LRR F)
HYDROLOGY  Wetland Mydrintogy Indicators:  Primary Indicators (minimum or one required  // Surface Water (A1)  High Water 5 able (A2)  Saturation (A3)  Water Marks (B1)  Sediment Disposits (32)  // Middle Disposits (B3)  // Maja Mat or Clust (R4)  for Deposits (B5)  mundation Visible on Aeriel Imagery (B7)  Water-Stained Leaves (B9)  Field Observations:  Surface Water Present? Yes N  Water Table Present? Yes N  Conditions resulting lings)  Describe Recorded Data (stream gauge, mon	A Sell Crust (B11) Aquatic Invertebrates (B13) Hydroger Sulfide Oddr (C1) Dry Season Water Tahle (C2) Oxidized Rhizosphores on Living Roofs (where not tilled) Presence of Reduted Inn (C4) Thin Muck Burface (C2) Other (Explain in Remarks)  Depth (Inches).  Depth (Inches). Weth	Surface Sail Cracks (B6)   Surface Sail Cracks (B6)   Dianegs Fatterns (B10)   Oxidated Rhuzospheres on Living Roots (C3)   (where itilitied)   Oreyfish Rumans (C6)   Saturation Visible on Aerial Imagery (C9)   Coomcophic Position (D2)   CAC-Neutral Text (C5)   Frost-Heave Purminocks (D7) (LRR F)
HYDROLOGY  Wettand Hydrintogy Indicators:  Propary Indicators (minimum or one required  "Surface Water (A1)  High Water 5 able (A2)  Saturation (A3)  Water Marks (B1)  Sediment Daposits (32)  The Deposits (B3)  Agai Mat or Clust (R4)  Ton Deposits (B5)  mundation visible on Aeriel Imagery (B7)  Field Observations:  Surface Water Present? Yes N  Water Table Present? Yes N  Saturation Present? Yes N  Saturation Present? Yes N  Saturation Present? Yes N  Conditions studies in the property of the present of the pre	A Sell Crust (B11) Aquatic Invertebrates (B13) Hydroger Sulfide Oddr (C1) Dry Season Water Tahle (C2) Oxidized Rhizosphores on Living Roofs (where not tilled) Presence of Reduted Inn (C4) Thin Muck Burface (C2) Other (Explain in Remarks)  Depth (Inches).  Depth (Inches). Weth	Surface Sail Cracks (B6)   Surface Sail Cracks (B6)   Dianeys Patterns (B10)   Oxidated Rhuzospheres on Living Roots (C3)   (where itilitied)   Oreyfish Rumans (C6)   Saturation Visible on Agrial Imagery (C9)   Coompanie Position (D2)   CAC-Neutral Text (C5)   Frost-Heave Purminocks (D7) (LRR F)
HYDROLOGY  Wetland Hydrinlogy Indicators:  Empary Indicators (minimum or one required  \[ \sigma \text{Surface Water (A1)} \]  High Water 5 able (A2)  Saturation (A3)  Water Marks (B1)  Sediment Daposits (32)  Indicators (B3)  Agai Mat or Clust (B4)  Ton Deposits (B5)  Intuidation Visible or Perfel Imagery (B7)  Field Observations:  Surface Water Present? YesN  Water Table Present? YesN  Saturation Present? YesN  Saturation Present? YesN  Conditions resulting lings)  Desorbe Recorded Date (stream gauge, monthly)	A Sell Crust (B11) Aquatic Invertebrates (B13) Hydroger Sulfide Oddr (C1) Dry Season Water Tahle (C2) Oxidized Rhizosphores on Living Roofs (where not tilled) Presence of Reduted Inn (C4) Thin Muck Burface (C2) Other (Explain in Remarks)  Depth (Inches).  Depth (Inches). Weth	Surface Sail Cracks (B6)   Surface Sail Cracks (B6)   Dianeys Patterns (B10)   Oxidated Rhuzospheres on Living Roots (C3)   (where itilitied)   Oreyfish Rumans (C6)   Saturation Visible on Agrial Imagery (C9)   Coompanie Position (D2)   CAC-Neutral Text (C5)   Frost-Heave Purminocks (D7) (LRR F)
HYDROLOGY  Wetland Hydrinlogy Indicators:  Empary Indicators (minimum or one required  \[ \sigma \text{Surface Water (A1)} \]  High Water 5 able (A2)  Saturation (A3)  Water Marks (B1)  Sediment Daposits (32)  Indicators (B3)  Agai Mat or Clust (B4)  Ton Deposits (B5)  Intuidation Visible or Perfel Imagery (B7)  Field Observations:  Surface Water Present? YesN  Water Table Present? YesN  Saturation Present? YesN  Saturation Present? YesN  Conditions resulting lings)  Desorbe Recorded Date (stream gauge, monthly)	A Sell Crust (B11) Aquatic Invertebrates (B13) Hydroger Sulfide Oddr (C1) Dry Season Water Tahle (C2) Oxidized Rhizosphores on Living Roofs (where not tilled) Presence of Reduced Inn (C4) Thin Muck Burface (C2) Other (Explain in Remarks)  Depth (Inches)  Depth (Inches) Weth	Surface Sail Cracks (B6)   Surface Sail Cracks (B6)   Dianeys Patterns (B10)   Oxidated Rhuzospheres on Living Roots (C3)   (where itilitied)   Oreyfish Rumans (C6)   Saturation Visible on Agrial Imagery (C9)   Coompanie Position (D2)   CAC-Neutral Text (C5)   Frost-Heave Purminocks (D7) (LRR F)

WE	TLAND DETERM	INA TIO	N DATA	FORM-	- Great Plains Region
9 Sept 30 5	. /				1
Project/Site. Leng (54 (C)	2/25/4-4	/		/	den, Jefferson Sampling Date: 7/29/0" State: C.O. Sampling Point: NREL-10
Approant/Owner: National Book	& Reading	./	yy Lab	200	ange See PINE. TO45. RTOW
investigator(s): <u>//yon, Orab</u> Landform (hillslope, terrace, etc.) <u>/</u>	200000000				convex nonel CO 100 ve Sope (%)
	Great Plans)		9. 73	80 W	Long: -105 1737 W Datum: NAD 83
Soil Map Unit Name: Deange	r Urban La		Com	plan	NW. classification:
Arc climatic / hydrologic curdit ons on	the site typical for this t	ime of yes	ar? Yes_	X No_	(if no exprein in Remarks)
Are Vegetation 📈 Scil 🗡 , o	r Hydrology <u>N</u> sig	nifica shy o	disturbed?	Are	Normal Circumstances" present? Yes No
Are Vegetation _ N . Soil N∠, o	r Hydrology <u>N</u> n et	urally pro	blematic?	(if ni	eeded, explain any onswers in Remarks )
SUMMARY OF FINDINGS - A	Attach site map si	nowing	samplin	ng point l	ocations, transects, important features, etc.
Hydrophytic Vegetation Present?	Yes No	V	- 1		
Hydric Soil Present?	Yes No	^	100	re Sampled Sin a Wetta	3/
Welland Flydrology Present?	Yeş No		1	4114 10 94 011131	10210
High Precip	Year				
	/ 1		1	1	
	made des	755	0.45/	1-00	ture - no inlet or outlet
VEGETATION - Use scientific					
Free Stratum (Plot size) 30		Misclute Micovar		Status	Dominance Test worksheet: Number of Dominant Species
1				(	That Are DBL, FACW, or FAC (A)
2	( <del></del>				esson made and some single
3.4				:	Total Number of Denvironi Species Across All Strate. (B)
No. of the second second	, -1	Or	= Fefal Co	—- :— жеі	Percent of Dominant Species
Sanling/Shrub Stratum (Plot size:	(3)	7	V	TACIO	That Are OBL, FACW or PAC. (A/R)
1 trong word				1-7-0	Prevalence Index worksheet:
3			05=V=8		CB. spoties x 1 =
4					FACW species x2 -
5	r	1	= Total Co		FAC species
Hert: Stratum (Plot size: 5		F #	v/	Farm	FACU species x 4 =
Apropyron Sm	Athi.	10	<del>-</del> N	FACU	Column Totals (A)
3 C-Vision Gra	1710-1115	10	N	FACU	(4)
4 FESTURA MEM	indinacea	_5_	N	FACU	Prevalence Index = B/A =
5. LACTUCE SUN	gais	5	_ N	FAC	Hydrophylic Vegetation Indicators:  **Dominance Test is >50%*
6 Banus Japa	Unichs	-5	N	FACU	N Frevalence Index is 53.0
R.		1	-1	FACK	Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
9					Problematic Hydrophytic Vegetation (Explain)
-0		er 2			
10	5', -	75 5	Talel Cov	101	Indicators of hydric soil and wetland hydrology must be present, unless disturned or problematic.
Woody Vine Stratus: (Flot size:			a	<del></del>	Hydrophytic
		Ng.			
Woody Vine Stratus: (Flot size:	1	0	Fotal Cov	ner nev	Vegetation Present? Yes No.
Woody Vine Stratt m (Flot size:	15	ø.	= Fotal Cov	ver l	Present? Yes No
Woody Vine Stratus: (Flot size:	<u> </u>	Ø.	= Fotal Cov	ver l	

	th needed to document the Indicator or confirm	Sampling Point: NREL - L is the absonce of Indicators.)
Cepth Marox (inches) Color (most) %	Podox Feature : Color investi Sa Type Loc <sup>2</sup>	Texture Remarks
17-20 10405/4 60		SCL Situaley lagon
1048 4/6 40		SCL
- 109A 7/6 40		
		A.S. 42
Type: C=Concentration D=Depiction, RM=	Reduced Matrix, CS: Covered or Coated Sand G	reins. 21 ocation: Pt=Pore Living, M=Metrix.
Hydric Soft Indicators: (Applicable to all	RRs, unless otherwise noted.)	Indicators for Problematic Hydric Solis <sup>3</sup> :
★/ Histosol (A*)  The state of the stat	P Sandy Cleyed Matrix (S4)	A 1 cm Muck (A9) (LRR I, J)
Histle Epipadon (A2)  Plack Highe (A3)	# Sandy Redox (25) Stripped Matrix (36)	Cosst Praine Rodox (A16) (LRR F, G, H)  Dark Surface (S7) (LRR C)
Hydrogen Sulfide (A4)	Lipamy Mucky Mineral (F1)	High Plains Depressions (F1G)
- Stratified Layers (AS) (LRR F)	Loany Glayed Matrix (#2)	(ERR H outside of MERA /2 & /3)
1 cm Muck (A9) (LRR F, G, H) Depleted Below Dark Surface (A11)	Depleted Matrix (F3) Redox Dark Surface (F6)	Reduced Vertic (F18)  Red Parent Material (TF2)
Thick Dark Sulface (A12)	Depleted Dark Surface (F7)	Ct/se: (Explain in Remarks)
Sandy Musky Mineral (S1)  2.5 sm Macky Peut or Peut (S2) (LRR 6)	High Plains Depressions (F8)  High Plains Depressions (F16)	"Indicators of hydrophytic vegetation and wetland hydrology must be present.
G or Mucky Post of Pest (S3) (LRR F)	(MLRA 77 & 73 of LRR H)	voless disturbed or problematic
Restrictive Layer (if present):		
TWO WA		- A
		Undels Call Grasses W
Death (inchas):		Hydric Soil Present? Yes No
Depth (inchas):		Hydric Soli Present? Yes No
Beoth (inchas):  Remarks:  IYDROLOGY  Wetland Hydrology Indicators:  Lymany indicators (minimum of one required		Seggadary agreators (minimum of two required)
Beoth (inchas):  Remarks:  IYDROLOGY  Wattand Hydrology Indicators:  Immary indicators (minimum of one required  N Surface Water (A1)	∠ Salt Crust (B11)	Sepandary andicators (minimum of two required)  A Surface Sci Cracks (Bin)
Death (inchas):  Remarks:  IYDROLOGY  Westland Hydrelogy Indicators:  Immary indicators (intrimum of one required  N Surface Water (A1)  High Water Table (A2)	∠ Salt Cross (e11)  ∠ Arpul a Invertebrates (E13)	Secondary adicators (minimum of two required)  Mainface Sol Dracks (Bin)  Thersely Vegetated Concave Surface (BS)
Beoth (inchas):  Remarks:  IYDROLOGY  Wattand Hydrology Indicators:  Immary indicators (minimum of one required  N Surface Water (A1)	∠ Salt Crust (B11)	Sepandary andicators (minimum of two required)  A Surface Sci Cracks (Bin)
Deoth (inclos):  Remarks:  IYDROLOGY  Watland Hydrology Indicators:  Immery indicators (minimum of one required  IN Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Miches (B1)  Sediment Deposits (B2)	Salt Cries (E11) Agrish Claverfebrates (E13) Hydrogen Solffide Odor (C1) Dry-Scason Water Table (C2) Oxidized Rhizespheres on Living Roots (	Sepandary indicators (minimum) of two required]  A Surface Sigl Cracks (Bib)  Drainsgly Vegetated Concave Surface (Bib)  Drainsgle Patterns (B10)  Cxidized Rillicospheres on Living Roots (C3)  (where tilled)
Death (inchas):  Remarks:  IYDROLOGY  Wetland Hydrology Inflicators:  Immary indicators (minimum of one required  AV Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Gediment Deposits (B2)  Drib Deposits (B3)	Salt Crief (B11) Agustic Invertebrates (B13) Hydrogen Sutflike Odn (C1) Dry-Snason Water Fable (C2) Oxidized Rhizospheres on Living Roots ( (where not tilled)	Secondary indicators (minimum of two required)  Misurface Sol Cracks (Bin)  Eparselly Vegetated Concave Surface (BS)  Diviringe Patterns (B10)  Oxidized Rhizosoheres on Living Roots (C3)  (where tilled)  Crayfish Burrows (C8)
Deoth (inclos):  Remarks:  IYDROLOGY  Watland Hydrology Indicators:  Immery indicators (minimum of one required  IN Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Miches (B1)  Sediment Deposits (B2)	Salt Cries (E11) Agrish Claverfebrates (E13) Hydrogen Solffide Odor (C1) Dry-Scason Water Table (C2) Oxidized Rhizespheres on Living Roots (	Sepandary indicators (minimum) of two required]  A Surface Sigl Cracks (Bib)  Drainsgly Vegetated Concave Surface (Bib)  Drainsgle Patterns (B10)  Cxidized Rillicospheres on Living Roots (C3)  (where tilled)
Death (inclos):  Remarks:	Agustic Invest (B11) Agustic Investebrates (B13) Hydrogen Sudfide Odon (C1) Dry-Scason Water Facile (C2) Oxidized Rhizospheres on Living Roots ( (where not tilled) Presence of Reditord from (C4) Thin Muck Surface (C7)	Sepandary indicators (minimum) of two required]  Mainface Sigh Cracks (Bin)  Dearway Vegetard Concave Surface (BS)  Dearway Patterns (E10)  Oxidized Rhizosoheres on Living Rooks (C3)  (where tilled)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  FAC-Noutre Test (O5)
Death (inclos):  Remarks:  IYDROLOGY  Watland Hydrology Indicators:  Immary indicators (minimum of one required  IV Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mail or Cruct (B4)  Inco Deposits (B5)  Intuited Book (B3)  Intuited Book (B4)	Agustic Invest (B11) Agustic Investebrates (B13) Hydrogen Sudfide Odon (C1) Dry-Scason Water Facile (C2) Oxidized Rhizospheres on Living Roots ( (where not tilled) Presence of Reditord from (C4) Thin Muck Surface (C7)	Sepandary advantors (minimum of two required)  Mainfees Sol: Cracks (Bit) Praining Patterns (B10) Oxidized Rhizosoheres on Living Roots (C3) (where tilled) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2)
Death (inclos):  Remarks:  WDROLOGY  Watland Hydrology Indicators:  Immery indicators (minimum of one regalized  W Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Brit Deposits (B3)  Aigal Mail of Cruct (34)  iron Deposits (B3)  Inuidation Yisible or, Acrial Imagery (B7)  Water-Stainerd Leaves (B9)  Field Observations:	Agustic Cried (IST1) Agustic Invertebrates (IST3) Hydrogen Southle Odor (CS) Dry-Shason Water Table (CZ) Oxidized Rhizospheres on Living Roots ( (where not tilled) Presence all Refluend Iron (C4) Thin Muck Surface (C7) Other (Explain in Remarks)	Sepandary indicators (minimum) of two required]  Mainface Sigh Cracks (Bin)  Dearway Vegetard Concave Surface (BS)  Dearway Patterns (E10)  Oxidized Rhizosoheres on Living Rooks (C3)  (where tilled)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  FAC-Noutre Test (O5)
Deoth (inclos):  Remarks:  IYDROLOGY  Watland Hydrology Indicators:  Immore indicators (minimum of one regalized  IV Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drib Deposits (B3)  Algal Mail or Cruct (34)  iron Deposits (B3)  Isruadation Visible or, Acrial Imagery (B7)  Water-Stainert Leaves (B9)  Field Observations:  Surface Water Present?  Yes N	Salt Criek (IST1)  Aguatic Invertebrates (IST3)  Hydrogen Southle Odor (Ct)  Dry-Snason Water Table (CZ)  Oxidized Rhizocyteres on Living Roots ( (Winternot tilled)  Presence all Reduced Iron (C4)  Thin Muck Surface (C7)  Other (Explain in Remarks)	Sepandary indicators (minimum) of two required]  Mainface Sigh Cracks (Bin)  Dearway Vegetard Concave Surface (BS)  Dearway Patterns (E10)  Oxidized Rhizosoheres on Living Rooks (C3)  (where tilled)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  FAC-Noutre Test (O5)
Deoth (inclos):  Remarks:  IYDROLOGY  Watland Hydrology Indicators:  Immery indicators (minimum of one required  IV Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drite Deposits (B3)  Agal Mail or Cruct (B4)  Iron Deposits (B5)  Incondetion Visible or Acrial Imagery (B7)  Water Stainer II erves (B9)  Field Observations:  Surface Water Present?  Water Table Present?  Yes N	Salt Criek (B11)  Aguatic Invertebrates (B13)  Hydrogen Southle Odor (C1)  Dry-Spason Water Table (C2)  Oxidized Rhizospheres on Living Roots ( (where not tilled)  Presence of Reduced Iron (C4)  Thin Muck Surface (C7)  Other (Explain in Remarks)	Seggidary indicators (minimum of two required)  M. Surface Sol Cracks (RR)  Pharsely Vegetated Concave Surface (RS)  Divinage Patterns (P10)  Oxidized Rilicospheres on Living Roots (C3)  (where tilled)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Populon (D2)  FAC-Noutra Jest (D5)  Frost-Heave Rummocks (D7) (LRR F)
Death (inchas):  Remarks:  WDROLOGY  Watland Hydrology Indicators:  Immary indicators (minimum of one required of one of one of one required of one	Salt Crief (IST1)  Aguatic Invertebrates (IST3)  Hydrogen Southle Odor (Ct)  Dry-Shason Water Table (CZ)  Oxidized Rhizosyheres on Living Roots ( (where not tilled)  Presence all Refluend Iron (C4)  Thin Muck Surface (C7)  Other (Explain in Remarks)  Depth (inches)  Depth (inches)  Wetta	Sepandary indicators (minimum of two required)  A Surface Sigl Cracks (Ris)  Desirage Patterns (210)  Oxidized Rhicosobieres on Living Roots (C3)  (where tilled)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (C2)  FAC Nouth Test (C5)  Frost Heave Hummocks (D7) (LRR F)
Death (inchas):  Remarks:  WDROLOGY  Watland Hydrology Indicators:  Immary indicators (minimum of one required of one of one of one required of one	Salt Criek (B11)  Aguatic Invertebrates (B13)  Hydrogen Southle Odor (C1)  Dry-Spason Water Table (C2)  Oxidized Rhizospheres on Living Roots ( (where not tilled)  Presence of Reduced Iron (C4)  Thin Muck Surface (C7)  Other (Explain in Remarks)	Sepandary indicators (minimum of two required)  A Surface Sigl Cracks (Ris)  Desirage Patterns (210)  Oxidized Rhicosobieres on Living Roots (C3)  (where tilled)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (C2)  FAC Nouth Test (C5)  Frost Heave Hummocks (D7) (LRR F)
Death (inchas):  Remarks:  Remarks:  Watland Hydrology Indicators:  Immary indicators (minimum of one required of one of one required of one of one required of one required of one of one required one of one of one required one of on	Salt Crief (811)  Aguatic Invertebrates (813)  Hydrogen Sutilize Odor (Ct)  Dry-Shason Water Fahle (CZ)  Oxidized Rhizospheres on Living Roots ( (where not filled)  Presence all Refluend Iron (C4)  Thin Muck Surface (C7)  Other (Explain in Remarks)  Depth (inches)  Depth (inches)  Depth (inches)  Wetta	Secondary indicators (minimum) of two renurced]  All face soil Cracks (Rin)  Dealwaye Partierns (210)  Oxidized Rhizosoberes on Living Roots (C3)  (where tilled)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  FAC-Noutra Test (D5)  Frost-Heave Furnmocks (D7) (LRR F)  and Hydrology Stevent? Yes No  Lavakabic:
Death (inchas):  Remarks:  Remarks:  Watland Hydrology Indicators:  Immary indicators (minimum of one required of one of one required of one of one required of one required of one of one required one of one of one required one of on	Salt Crief (811)  Aguatic Invertebrates (813)  Hydrogen Sutilize Odor (Ct)  Dry-Shason Water Fahle (CZ)  Oxidized Rhizospheres on Living Roots ( (where not filled)  Presence all Refluend Iron (C4)  Thin Muck Surface (C7)  Other (Explain in Remarks)  Depth (inches)  Depth (inches)  Depth (inches)  Wetta	Secondary indicators (minimum) of two renurced]  All face soil Cracks (Rin)  Dealwaye Partierns (210)  Oxidized Rhizosoberes on Living Roots (C3)  (where tilled)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  FAC-Noutra Test (D5)  Frost-Heave Furnmocks (D7) (LRR F)  and Hydrology Stevent? Yes No  Lavakabic:
Death (inclus):  Remarks:	Salt Crief (811)  Aguatic Invertebrates (813)  Hydrogen Sutilize Odor (Ct)  Dry-Shason Water Fahle (CZ)  Oxidized Rhizospheres on Living Roots ( (where not filled)  Presence all Refluend Iron (C4)  Thin Muck Surface (C7)  Other (Explain in Remarks)  Depth (inches)  Depth (inches)  Depth (inches)  Wetta	Secondary indicators (minimum) of two renurced]  All face soil Cracks (Rin)  Dealwaye Partierns (210)  Oxidized Rhizosoberes on Living Roots (C3)  (where tilled)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  FAC-Noutra Test (D5)  Frost-Heave Furnmocks (D7) (LRR F)  and Hydrology Stevent? Yes No  Lavakabic:
Deoth (inchos):    Part   Part   Part   Part	Salt Crief (811)  Aguatic Invertebrates (813)  Hydrogen Sutilize Odor (Ct)  Dry-Shason Water Fahle (CZ)  Oxidized Rhizospheres on Living Roots ( (where not filled)  Presence all Refluend Iron (C4)  Thin Muck Surface (C7)  Other (Explain in Remarks)  Depth (inches)  Depth (inches)  Depth (inches)  Wetta	Secondary indicators (minimum) of two renurced]  All face soil Cracks (Rin)  Dealwaye Partierns (210)  Oxidized Rhizosoberes on Living Roots (C3)  (where tilled)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)  FAC-Noutra Test (D5)  Frost-Heave Furnmocks (D7) (LRR F)  and Hydrology Stevent? Yes No  Lavakabic:

WETLAND DET	ERMINATION DATA F	ORM – Great Plains Region
1-11/000	-11 C-2044	~ 11. TI1/28/20
. 6		Golden, Jefferson sampling Date: 421/09 State: 60 Sampling Point URE4-11
		nship, Range Sec PINE, TO45, R 70W
Linctorm (hillstope, terrage, etc.): Promeyer 5		corpeavo, convex, none): Com Caue Slope (%): 2
Subregion (LRR): G/ Western Great Pla.	45) Lat 39, 736	59° Long: -105:1747 W Delum NAD 83
Soil Map Unit Name Denver hick- 1/000	d Complex	50.5
Are elimetic / hydrologic conditions on the site typical fo		No (life p. explain in Remarks.)
Are Vegetation		Are 'Normal Circumstances' present? Yes X No
Are Vegetation _ A. Soil . A. or Hydrology _ Lu		(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site m	ap showing sampling	point locations, transects, important features, etc.
Flydrichytic Vegetation Present? Yes 📉	No s the	Sampled Area
Hydric Soil Present? Yes X Wotland Hydrology Present? Yes X	Alex	a Walland? Yes No
Remarks		
High Precip Year		
originally this	sugle was	created by slocks idning
VEGETATION - Use scientific names of p	lants.	
	Absolute Comment la	
Tree Stratury (Plot size: 20	% Cover_Species?	Status Number of Dominant Species That Are OBL_FACW, or FAC
ž_		(A)
3		Total Number of Dominant Species Across Als Strate:  (B)
4	= Total Cove	
Saplina/Shrub Stratum (Plot size:/		Porcent of Dominant Species That Are OBL, FACW or FAC. (A/B)
Selix exigen	- 6.0 / 10 Al E	L/1.J Prevalence Index worksheet:
2 Salix emygloloides		Total % Cover of Writiply by:
4		OH species x1 =
5		F00
Herb Stratum (Plot size: 5	= 10tal Coze	=//CU spenes x 4 =
1 Circian arrense	$-\frac{30}{10}$	Acu UPI species x 5 =
2 Chaire Meridanis	- 10 Y F	ACW (B)
4 Glychyrchiza lepiden		ACLU Prevalence Index = BV/ =
5 Runex Crispas	TN_F	Hydrophylic Vegetation indicators:
6		Prevalence index is \$3.01
7		Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
у		Problemship Hydrophylls Vegetation (Explain)
1C	===-	
Woody Vine Stratum (Piolistics 5 )	.5 () = Tale! Caver	Indicators of hydroboll and welland hydrology must be present, unless districted or problematic.
2		Hydrophylic
15	Total Cover	Vegetation Present? Yes No
% Bare Ground in Hest Stratum	775	Control of the Contro
2.2 (2.3 (2.7 (3.6 (3.6 )		V.

Broth Description   Descript	SOIL		Sampling Point NREL-II	
Depth   Mark   Reference   Remarks		peeded to document the lucterator or contro		
Interest   Code Concentrator   D-Depleton   NM Rentword Mater,   DS-Depend of Content South Code	(Ap. eth.)	Dodge Francisco	an and a source of materials of	
Tyse: C+Concentrator, 15-Displation, NM. Rethinoid Militis, (15-Covering or Cooled Said Grain). **Location: P2-Fore Lining, M-Matrix, M-Visite Soil Indicators: (Applicable to all LRRs, unless otherwise natural). **Historia (A)**  Historia (A)**  Historia (A)**  Historia (A)*	(highes) Color (moist) %	Color (moist) % Type Loc	The second secon	
Type: C-Concentration, 13-depletion, RM. Rethosof Mattin, CSE(Covered to Cooled Gold Glargs). **Location: PL-Fore Lining, Matthick Mythic Soil Indicators: (Applicable to all LRRs, unbase otherwise notion). **Indicators for Problematic Hydric Soils?**  # Haldic Explader (A2)	0-8 10183/2 36 -	7.5485/8 20 C M	Sac Sandy Clay	
Hydric Soil Indicators: Applicable to all LRRs, unless otherwise noteral)  Histosol (A1)  Histosol (A2)  Histosol (A2)  Histosol (A2)  Histosol (A2)  Histosol (A2)  Shardy Reston (B2)  Histosol (A2)  Shardy Reston (B2)  Hydrogon Suffice (A2)  Shardy Reston (B2)  To Mistosol (A3)  Depleted Matrix (B4)  Depleted Scion Dark Surface (A11)  Depleted Scion Dark Surface (A11)  Proto Dark Surface (A12)  Sandy Mistoy Meneral (B1)  Zo Smith Mistoy Meneral (B1)  Zo Smith Mistoy Meneral (B1)  Zo Smith Mistoy Peet or Peet (S2) (LRR G, H)  Depleted Dark Surface (A12)  Restrictive Layer (If present):  Type:  Depleted Scion Mistoy Peet or Peet (S2) (LRR G, H)  Depleted Dark Surface (A12)  Restrictive Layer (If present):  Type:  Mistorophysiolate (A2)  Hydric Soil Present?  Primp Pundiquist at Smith Restriction of the Soil Present (B2)  Water and Hydrology Indicators:  Hydric Soil Present?  Water Table (A2)  Assurance Invariance of Control (B4)  Water Marks (B1)  Application of Mistorophysiolate (B13)  Appli	8-21 10483/3/100	83	Sec /	
Hydric Soll Indicators:   Applicable to all LRRs, unless otherwise action				
Hydric Soil Indicators: Applicable to all LRRs, unless otherwise noteral)  Histosol (A1)  Histosol (A2)  Histosol (A2)  Histosol (A2)  Histosol (A2)  Histosol (A2)  Shardy Reston (B2)  Histosol (A2)  Shardy Reston (B2)  Hydrogon Suffice (A2)  Shardy Reston (B2)  To Mistosol (A3)  Depleted Matrix (B4)  Depleted Scion Dark Surface (A11)  Depleted Scion Dark Surface (A11)  Proto Dark Surface (A12)  Sandy Mistoy Meneral (B1)  Zo Smith Mistoy Meneral (B1)  Zo Smith Mistoy Meneral (B1)  Zo Smith Mistoy Peet or Peet (S2) (LRR G, H)  Depleted Dark Surface (A12)  Restrictive Layer (If present):  Type:  Depleted Scion Mistoy Peet or Peet (S2) (LRR G, H)  Depleted Dark Surface (A12)  Restrictive Layer (If present):  Type:  Mistorophysiolate (A2)  Hydric Soil Present?  Primp Pundiquist at Smith Restriction of the Soil Present (B2)  Water and Hydrology Indicators:  Hydric Soil Present?  Water Table (A2)  Assurance Invariance of Control (B4)  Water Marks (B1)  Application of Mistorophysiolate (B13)  Appli		TALL SECTIONS		
Hydric Soil Indicators: Applicable to all LRRs, unless otherwise noteral)  Histosol (A1)  Histosol (A2)  Histosol (A2)  Histosol (A2)  Histosol (A2)  Histosol (A2)  Shardy Reston (B2)  Histosol (A2)  Shardy Reston (B2)  Hydrogon Suffice (A2)  Shardy Reston (B2)  To Mistosol (A3)  Depleted Matrix (B4)  Depleted Scion Dark Surface (A11)  Depleted Scion Dark Surface (A11)  Proto Dark Surface (A12)  Sandy Mistoy Meneral (B1)  Zo Smith Mistoy Meneral (B1)  Zo Smith Mistoy Meneral (B1)  Zo Smith Mistoy Peet or Peet (S2) (LRR G, H)  Depleted Dark Surface (A12)  Restrictive Layer (If present):  Type:  Depleted Scion Mistoy Peet or Peet (S2) (LRR G, H)  Depleted Dark Surface (A12)  Restrictive Layer (If present):  Type:  Mistorophysiolate (A2)  Hydric Soil Present?  Primp Pundiquist at Smith Restriction of the Soil Present (B2)  Water and Hydrology Indicators:  Hydric Soil Present?  Water Table (A2)  Assurance Invariance of Control (B4)  Water Marks (B1)  Application of Mistorophysiolate (B13)  Appli				
Hydric Soil Indicators: Applicable to all LRRs, unless otherwise noteral)  Histosol (A1)  Histosol (A2)  Histosol (A2)  Histosol (A2)  Histosol (A2)  Histosol (A2)  Shardy Reston (B2)  Histosol (A2)  Shardy Reston (B2)  Hydrogon Suffice (A2)  Shardy Reston (B2)  To Mistosol (A3)  Depleted Matrix (B4)  Depleted Scion Dark Surface (A11)  Depleted Scion Dark Surface (A11)  Proto Dark Surface (A12)  Sandy Mistoy Meneral (B1)  Zo Smith Mistoy Meneral (B1)  Zo Smith Mistoy Meneral (B1)  Zo Smith Mistoy Peet or Peet (S2) (LRR G, H)  Depleted Dark Surface (A12)  Restrictive Layer (If present):  Type:  Depleted Scion Mistoy Peet or Peet (S2) (LRR G, H)  Depleted Dark Surface (A12)  Restrictive Layer (If present):  Type:  Mistorophysiolate (A2)  Hydric Soil Present?  Primp Pundiquist at Smith Restriction of the Soil Present (B2)  Water and Hydrology Indicators:  Hydric Soil Present?  Water Table (A2)  Assurance Invariance of Control (B4)  Water Marks (B1)  Application of Mistorophysiolate (B13)  Appli		***		
Hydric Soil Indicators: Applicable to all LRRs, unless otherwise noteral)  Histosol (A1)  Histosol (A2)  Histosol (A2)  Histosol (A2)  Histosol (A2)  Histosol (A2)  Shardy Reston (B2)  Histosol (A2)  Shardy Reston (B2)  Hydrogon Suffice (A2)  Shardy Reston (B2)  To Mistosol (A3)  Depleted Matrix (B4)  Depleted Scion Dark Surface (A11)  Depleted Scion Dark Surface (A11)  Proto Dark Surface (A12)  Sandy Mistoy Meneral (B1)  Zo Smith Mistoy Meneral (B1)  Zo Smith Mistoy Meneral (B1)  Zo Smith Mistoy Peet or Peet (S2) (LRR G, H)  Depleted Dark Surface (A12)  Restrictive Layer (If present):  Type:  Depleted Scion Mistoy Peet or Peet (S2) (LRR G, H)  Depleted Dark Surface (A12)  Restrictive Layer (If present):  Type:  Mistorophysiolate (A2)  Hydric Soil Present?  Primp Pundiquist at Smith Restriction of the Soil Present (B2)  Water and Hydrology Indicators:  Hydric Soil Present?  Water Table (A2)  Assurance Invariance of Control (B4)  Water Marks (B1)  Application of Mistorophysiolate (B13)  Appli	-			
Hydric Soll Indicators:   Applicable to all LRRs, unless otherwise action	Time! CoConcentration IX Decisions EM O	adulad Unio CD-D	7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 -	
Histosid (A1) Hill Esipadian (A2) Hill Esipadi				
High Estication (A2)  Glack Histor (A3)  Hid copon Sulface (A4)  Straped Methy (S6)  Hydrogon Sulface (A4)  Straped Methy (S6)  Straped Methy (S6)  Hydrogon Sulface (A4)  Loomy Mucky Merel (F1)  Loomy (Cloyd Mathy (F2)  Depleted Scriw (A3) (LRR F, 0, H)  Depleted Scriw Dark Surface (A11)  Phedox Dark Surface (A12)  Sanny Mucky Minerii (S1)  Sanny Mucky Minerii (S2) (LRR G, H)  Depleted Scriw Dark Surface (A12)  Sanny Mucky Minerii (S2) (LRR G, H)  Phedox Dark Surface (A12)  Sanny Mucky Minerii (S2) (LRR G, H)  High Plates Depressions (F16)  Lichin Huddiside in Murka 72 & 73)  Redox Dark Surface (F16)  Depleted Dink Surface (F16)  Zom Mucky Peter of Ped (S2) (LRR G, H)  High Plates Depressions (F16)  High Plates Depressions (F16)  Incitation of Murka 72 & 73 of LRR (H)  Redox Dark Surface (R16)  Zom Mucky Peter of Ped (S3) (LRR F)  High Plates Depressions (F16)  Incitation of Murka 72 & 73 of LRR (H)  Redox Dark Surface (R16)  Zom Mucky Peter of Ped (S3) (LRR F)  Hydric Soil Present? Yes No  Depth (Incher):  Hydric Soil Present? Yes No  Depth (Incher):  Hydric Soil Present? Yes No  Sorresp Vegetated Concave Surface (R8)  Sourface Water (A1)  Available Invertebables (R13)  Wick Murk Murks (R1)  Available Invertebables (R13)  Wick Murk Murks (R1)  Available Invertebables (R13)  Wick Murks Murks (R1)  Available Invertebable (R2)  Wick Murks Murks (R1)  Available Invertebables (R13)  Wick Murks Murks (R15)  Available Invertebables (R16)  Available Invertebable (R17)  Available Invertebable (R17)  Available Invertebable Invertebable (R17)  Available Invertebable Invertebable (R17)  Available Invertebable Invertebables (R18)  Available Invertebable Invertebable (R18)  Available Invertebable Invertebable (R17)  Available Invertebable Invertebable (R17)  Available Invertebable Invertebable (R18)  Available I	1 28		하다 있다면 가게 하는 아니라 아니라 아니라 하다 하다 하다 하는 것이 없어 되었다.	
Hydrogon Suffac (A4)  Strathed Layers (A5) (LRR F)  1 om Muck (A5) (LRR F)  1 om Muck (A5) (LRR F)  1 om Muck (A5) (LRR F)  Depleted Sclow Dark Surface (A11)  Depleted Sclow Dark Surface (A11)  Prote Dark Surface (A2)  Sanny Mucky Mene (S1)  A Depleted Dark Surface (A1)  Depleted Dark Surface (A1)  A Depleted Dark Surface (A1)  A Composition (F)  Red Parent Material (F2)  Diffic (Dark Surface (A12)  Sanny Mucky Peat or Peat (S2) (LRR G, H)  A com Mucky Peat or Peat (S2) (LRR G, H)  A com Mucky Peat or Peat (S2) (LRR G, H)  MIRA 77 & 73 of LRR H)  Hydric Soil Present;  Type:  Depth (Inchery)  Remarks  Repair (A)  Hydric Soil Present;  No  Hydric Soil Present;  No  Surface Water (A1)  A Saturation (A3)  Water Mains (B1)  A Saturation (A3)  Water Mains (B1)  A Quality Invariables (B13)  Mira Mains (B1)  A Continued Invariables (B13)  Mira Mains (B1)  A Continued Neutron (B4)  A Invariable (B2)  A point (Barrier)  A point (Barrier)  Mira Mains (B1)  Mira Mains (B1)  A point (Barrier)  Mira Mains (B1)  Mi		Sandy Redox (55)	Coast Preirie Redox (A16) (LRR F, G, H)	
Strabbed Layers (AS)   LRR F)				
Term Muck (A5), (LRR F, G, H) Depleted Selow Dark Surface (A11) Depleted Selow Dark Surface (A11) Depleted Selow Dark Surface (A12) Sanny Mucky Memeril (S1) 2.5 cm Mucky Poet or Peat (S2) (LRR G, H) A cm Mu	No.   100			
Thick Dark Surface (A12) Sanity Mucky Mental (S1) 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 3.1 (light Plairs Depressions (F1) 3.5 cm Mucky Peat or Peat (S2) (LRR G, H) 3.1 (light Plairs Depressions (F1) 3.5 cm Mucky Peat or Peat (S2) (LRR G, H) 3.1 (light Plairs Depressions (F1) 3.5 cm Mucky Peat or Peat (S2) (LRR G, H) 3.1 (light Plairs Depressions (F1) 3.5 cm Mucky Peat or Peat (S2) (LRR G, H) 3.1 (light Plairs Depressions (F1) 3.5 cm Mucky Peat or Peat (S2) (LRR G, H) 3.1 (light Plairs Depressions (F1) 3.5 cm Mucky Peat or Peat (S2) 3.5 cm Mucky Peat or Peat (S2) 3.5 cm Mucky Peat or Peat (S2) 4.5 cm Mucky Peat or Peat (S2) 5.5 cm Mucky Peat or Peat (S2) 6.5 cm Mucky Peat (S3) 6.5 cm Mucky Peat (S4) 6.5	[			
Sandy Mucky Mineral (S1)   Recox Depressions (F8)   Indicators of bytrophysic vegetation and wetland hydrology must be present, unless disturbed on problematic.			- (1 PC ) (10 S 등 (1 PC ) (1	
2.5 cm Mucky Peat or Peat (S2) (LRR G, H)   All light Plains Depressions (F16)   wetland hydrology must be present, on Mucky Peat or Peat (S3) (LRR F)   MLRA 77 & 73 of LRR H)   unless disturbed or problematic.	:			
Sestictive Layer (if present):   Type:   MA    Debth (inches):   Hydric Soll Present2   Yes   No				
Hydric Soll Present? Yes No	5 cm Mucky Post or Post (83) (LRR F)	보다		
Remarks:    Remarks   Rip Rep in Serge   Remarks   Rip Rip Remarks   Rip Remarks   Rip Remarks   Rip Remarks   Rip Remarks   Rip Rip Remarks   Rip Rip Remarks   Rip Rip Rip Remarks   Rip				
HYDROLOGY  Wetland Hydrology Indicators:  Primpry Indicators (Art)  Westland Hydrology Indicators (Indicators	The Depth 2 Discount Control of the			
HYDROLOGY  Wetland Bydrology Indicators:  Primpry Indicators (Trimmum of one required check at Ibat apply)  William Water (A1)  Wind Water Table (A2)  Wind Water Marks (B1)  Wind Water Marks (B1)  Wind Water Marks (B1)  Wind Water Marks (B2)  Wind Water Marks (B2)  Wind Water Marks (B3)  Wind Deposits (B3)  Wind Water Marks (B3)  Wind Water Water Marks (B3)  Wind Water Water Marks (B3)  Wind Water Wate	Type: NA		V 1	
Watland Hydrology Indicators:  Primpry Indicators (Eminimum of one required check at Islat epoly)  Water Carl (A1)  Water Carl (A2)  Water Table (A2)  Water Marks (B1)  Water Marks (B2)  Water Marks (B3)  Water Marks (B3)  Water Marks (B1)  Water Marks (B1)  Water Marks (B1)  Water Marks (B2)  Water Marks (B3)  Water Marks (B3)  Water Marks (B4)  Water Marks (B4)  Water Marks (B4)  Water Marks (B5)  Water Marks (B4)  Water Marks (B5)  Water Stand Leaves (B7)  Water Stand Leaves (B7)  Water Stand Leaves (B7)  Water Stand Leaves (B7)  Water Marks (	Type: NA Depth (Inches):	·/e_	Hydric Soll Present? Yes X No	
Pitentry Indicators Eminimum of every required, check at Islat epoly)   Secondary Indicators (minimum of two required)   Pitentry Indicators (Minimum of two required (Minim	Type: NA  Depth (Inches):  Remarks:  Rip Pap In Sand	·/e.	Hydric Soll Present? Yes No	
Surface Water (A1)	Type: NA  Depth (Inches):  Remarks  Rip Pap in 5a	·/e.	Hydric Soll Present? Yes No	
## Aquant Invertebrates (B13)   Spersery Vegetated Concave Surface (B6)   ## Saturation (A3)   Hydrogen Suffide Odor (C1)   Drainage Patterns (B10)   ## Water Marks (B1)   More Season Water Table (C2)   More Marks (B10)   Drainage Patterns (B10)   ## Water Marks (B1)   More Season Water Table (C2)   More Marks (B10)   Drainage Patterns (B10)   More Marks (B10)   ## Oxidized Rhizespheres on Living Roots (C3)   (where the tilled)   More Marks (B10)   ## Aquant Invertebrates on Living Roots (C3)   Drainage Patterns (B10)   More Marks (B10)   ## Appendix (B3)   Water Note (B10)   More Marks (B10)	Type:			
Mater Marks (B1)	Type:	heck at that enoly)	Secondary Indicators (minimum of two required)	
Certiment Deposits (B2)  Diff Deposits (B3)  Again Nation Crust (B4)  Algain Nation Nation Nation Nation (C4)  Algain Nation Nation Nation (C5)  Algain Nation Nation Nation (C5)  Algain Nation Nation (C6)  Algain Nation Nation Nation (C6)  Algain Nation Nation Nation Nation (C6)  Algain Nation Nation Nation Nation (C6)  Algain Nation N	Type:	heck at that epoly)  NV Salt Crest (811)	Secondary Indicators (minimum of two required)  Of Sinitace Soil Cranks (96)	
Describe Present?   Yes   No   Depth (inches)   Welland Hydrology Present? Yes   No   Depth (inches)   Describe Recorded Data (stream gaugs, monitoring well, aerial photos, previous respections). If available.	Type:	heck at Ibat enoly)  (A) Salt Crest (311)  (A) Aquenc Invertebrates (B13)	Secondary Indicators (minimum of two required)  Of Suntace Soil Cranks (96)  Spansary Vegetated Concave Surface (88)	
Algaf Nation Crust (B4)  I Presence of Reduced Iron (C4)  I Iron Deposits (B5)  I Thin Muck Surface (C7)  I Geomorphic Position (D2)  I Hundstlon Visible on Acrist Imagery (B7)  I Char (Explain in (Remarks)  I Frost Heave Turnmocks (D7) (LRR F)  Frost Heave Turnmocks (D7) (LRR F)  Valet Table Present?  Valet Table Present?  Yes  No  Depth (inches)  Saturation Present? Yes  No  Depth (inches)  Saturation Present? Yes  No  Depth (inches)  Saturation Present? Yes  No  Depth (inches)  Saturation Present? Yes  No  Depth (inches)  Saturation Present? Yes  No  Depth (inches)  Saturation Present? Yes  No  Depth (inches)  Saturation Present? Yes  No  Depth (inches)  Saturation Present? Yes  No  Depth (inches)  Saturation Present? Yes  No  Depth (inches)  Saturation Present? Yes  No  Saturation Present? Yes  No  Depth (inches)  Saturation Present? Yes  No  Saturation Presen	Type:	hock at that epoly)  N Salt Crest (311)  N Aquant Invertebrates (813)  N Hydrogen Sulfide Odor (C1)  NysSouson Water Table (C2)	Secondary Indicators (minimum of two reastrys)  A. Sturbler Soll Charks (B6)  Spensery Vegetated Concave Surface (B8)  (Y) Drainage Patterns (B10)  A. Oxidized Phizospheres on Living Roots (C3)	
In In Muck Surface (C7)  In In Muck Surface (C7)  In I	Type:	hock at that ecoly)  IV Salt Crest (311)  Aquabic Invertebrates (813)  If Hydrogen Suifide Odor (01)  If Ory-Scason Water Table (02)  Ovidized Khizospheres on Living Roots (	Secondary Indicators (minimum of two required)  A. Suntace Soil Charks (B5)  A. Spirsary Vegetated Concave Surface (B6)  (Y) Drainage Patterns (B10)  A. Oxidized Phitzestheres on Living Roots (C3)  (where tilled)	
Mindston Visible on Adric Irragery (B7)  Water-Staned Leaves (39)  Windston Visible on Adric Irragery (B7)  Water-Staned Leaves (39)  Windston Staned Leaves (39)  Wellind Hydrology Present? Yes No X Depth (inches)  Saturation Present? Yes No X Depth (inches)  Wellind Hydrology Present? Yes No X Depth (inches)  Describe Recorded Data (stream gaugs, monitoring well, aeral photos, provious respections), if available.	Type:	heck at that epoly)  IV Salt Crest (811)  V Aquent Invariebnates (813)  V Hydrogen Suffide Odor (01)  Ony-Souson Water Table (02)  Oxidized Khizontheres on Living Roots (where not tilled)	Secondary Indicators (minimum of two required)  A Surface Soil Cracks (86)  Spersery Vegetated Correave Surface (88)  Drainage Patterns (810)  A Oxidized Phitespheres on Living Roots (C3)  (where titled)  A Crayfeyr Burrows (C8)	
Water-Staned Lerver (39)  First Heave Hummocks (07) (LRR F)  Field Observations:  Surface Water Prosent? Yes No Depth (inches):  Water Table Present? Yes No Depth (inches):  Saturation Present? Yes No Depth (inches):  WetLand Hydrology Present? Yes No Depth (inches):  (includes capillary finge)  Describe Recorded Data (stream gaugs, monitoring well, aers) photos, previous respections), if available.	Type:	heck at Ihat epoly)  IV Salt Crest (811)  IV Aquent Invertebrates (813)  IV Hydrogen Suffide Odor (61)  IV Ory-Sonson Water Table (62)  IV Ovidized Khizoscheres on Living Roots ( Where not tilled)  IV Presence of Reduced Iron (64)	Secondary Indicators (minimum of two required)  A. Suntace Soil Cranks (86)  Socrasty Vegetated Concave Surface (88)  D. Drainage Patterns (810)  A. Oxidized Rhizospheres on Living Roots (C3)  (where titled)  A. Crayfish Burdwis (C8)  A. Saturation Visible on Agrial Imagery (C9)	
Surface Water Present? Yes No Depth (inches):  Water Table Present? Yes No Depth (inches):  Saturation Present? Yes No Depth (inches):  Wedurd Hydrology Present? Yes No Depth (inches):  Wedurd Hydrology Present? Yes No Depth (inches):  Describe Recorded Data (stream gaugs, monitoring well, aer alphotos, previous respections), if available.	Type:	heck at Inat epoly)  A Salt Crest (811)  A Aquatic Invariebrates (813)  Mycrogen Suffide Odor (C1)  Ory-Souson Water Table (C2)  Oxidizing Khizoortheres on Living Roots ( where not tilled)  Preserve of Rectived Iron (C4)  Than Muck Surface (C7)	Secondary Indicators (minimum of two required)  Of Suntace Soil Charks (96)  Spensery Vegetated Concave Surface (86)  Oxidized Rhizospheres on Living Roots (C3)  (where tilled)  Oxinyfier Purrows (C6)  Seturation Misible on Adriel Imagery (C9)  Ceromorphia Postion (D2)	
Water Table Present? Yes No Depth (inches):  Saturation Present? Yes No Depth (inches):  Well-and Hydralogy Present? Yes No Depth (inches):  Becaribe Recorded Data (stream gaugs, monitoring well, aer alphotos, previous respections), if available.	Type:	heck at Inat epoly)  A Salt Crest (811)  A Aquatic Invariebrates (813)  Mycrogen Suffide Odor (C1)  Ory-Souson Water Table (C2)  Oxidizing Khizoortheres on Living Roots ( where not tilled)  Preserve of Rectived Iron (C4)  Than Muck Surface (C7)	Secondary Indicators (minimum of two reastryd)  A. Sturbice Soil Crarks (B6)  Spensery Vegetated Concave Surface (B8)  (Y) Drainage Patterns (B10)  A. Oxidized Phizospheres on Living Roots (C3)  (where tilled)  A. Saturation Visible on Adrial Imagery (C9)  A. Secondary Position (D2)  A. FAC-Noutral Test (D5)	
Saturation Present? Yes No Doctri (inches). Well-and Hydralogy Present? Yes No Doctribe Recorded Data (stream gaugs, monitoring well, aerial photos, previous inspections). If available.	Type:	heck at that epoly)  IV Salt Crest (311)  IV Aquent Invertebrates (813)  IV Hydrogen Scilide Odor (61)  IV Drys Sonson Water Table (62)  IV Oxidized Phizopheres on Living Roots (17)  IV Train Muck Surface (17)  IV Coher (Explain in Remercs)	Secondary Indicators (minimum of two readings)  A Sturbler Soll Crarks (B6)  Spensery Vegetated Concave Surface (B8)  (Y) Drainage Patterns (B10)  A Oxidized Phizospheres on Living Roots (C3)  (where tilled)  A Saturation Visible on Adrial Imagery (C9)  A Secondary Test (D5)  A FAC-Noutral Test (D5)	
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#### DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS, OMAHA DISTRICT
DENVER REGULATORY OFFICE, 9307 SOUTH WADSWORTH BOULEVARD
LITTLETON, COLORADO 80128-6901

August 28, 2009

Mr. Steve Blazek Department of Energy Golden Field Office 1617 Cole Boulevard Golden, CO 80401-3393

RE: Lena Gulch Wetland Delineation Review Relevant to the National Renewable Energy Laboratory Supplemental Environmental Assessment for the South Table Mountain Facility

Corps File No. NWO-2009-2120-DEN

Dear Mr. Blazek

Mr. Terry McKee of my office has reviewed your August 17, 2009 correspondence containing the wetland delineation report and map for this project located in the NE ¼ of Section 1, T4S, R70W, Jefferson County, Colorado. Mr. McKee considers your wetland report and map for this project accurate and acceptable.

If any work associated with this project requires the placement of dredged or fill material, and any excavation associated with a dredged or fill project in Lena Gulch Stream bed or wetlands, this office should be notified by a proponent of the project for Department of the Army permits or changes in permit requirements pursuant to Section 404 of the Clean Water Act.

Work in Lena Gulch Stream bed or wetlands should be identified and be shown on a map identifying the Quarter Section, Township, Range and County and Latitude and Longitude, Decimal Degrees (datum NAD 83) and the dimensions of work in a stream bed or wetland. Any loss of an aquatic site may require mitigation. Mitigation requirements will be determined during the Department of the Army permitting review.

The Omaha District, Regulatory Branch is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to complete our Customer Service Survey found on our website at http://per2.nwp.usace.army.mil/survey.html. If you do not have Internet access, you may call and request a paper copy of the survey that you can complete and return to us by mail or fax. (Completing the survey is a voluntary action)

If there are any questions call Mr. Terry McKee of my office at 303-979-4120 and reference Corps File No. NWO-2009-2120-DEN.

Sincerely,

Timothy T. Carey Chief, Denver Regulatory Office

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tm



# Department of Energy

Golden Field Office 1617 Cole Boulevard Golden, Colorado 80401 3305

September 1, 2009

Ms. Ellen Mayo
U.S. Fish and Wildlife Service
Ecological Services
Western Colorado Field Office
764 Horizon Drive, Building B
Grand Junction, Colorado 81506-3946

Dear Ms. Mayo,

# RE: LENA GULCH ROAD CROSSING - GOLDEN, COLOROADO

The U.S. Department of Energy (DOE) is proposing to establish a second full service access road to its South Table Mountain (STM) Complex to accommodate future growth at the facility. Four of DOE's proposed access corridors would cross Lena Gulch to create a southern route for STM access. Figure 1 presents the project area and the proposed corridors.

DOE is currently preparing an Environmental Assessment (EA) Supplement for five proposed Site Development Projects at the National Renewable Energy Laboratory's STM site:

- 1) Energy Systems Integration Facility (ESIF)
- 2) Expansion of campus infrastructure
- 3) Waste Handling Facility (WHF) expansion
- 4) Visitor's Center expansion
- 5) The addition of a second full service access road (secondary access) to STM

A rare plant survey is needed to determine baseline conditions for the secondary access portion of the EA and represents an effort by DOE to afford the U.S. Fish and Wildlife Service an opportunity to be involved early in project planning.

## Project Location

The project location is north of I-70 and west of Denver West Parkway on a portion of the former Camp George West National Guard facility in Jefferson County. The land within the project area includes private land as well as land currently owned by Jefferson County Open Space and leased by the Pleasant View Metropolitan District (T04S, R70W, SEC 01, NE1/4 - Morrison Quadrangle- Figure 1). The UTM coordinates (NAD83) representing the upstream and downstream extents of the project area under consideration are upstream: Zone 13, 4398241mN, 484740mE; downstream: Zone 13, 4398582mN and 485724mE. Adjacent properties include the Pleasant View Subdivision to the west, NREL to the north, the Colorado State Patrol Academy and correctional facility to the south, and the Richards Heights subdivision and a larger private parcel to the east.



Access to the project location is from South Golden Road and Kilmer Street (Figure 1). The majority of the project area is contained within Pleasant View Community Park with adjoining private parcels up- and down-stream of the park.

### Vegetation and Habitat

Lena Gulch originates in the foothills in the Apex Park Open Space west of the Heritage Square Amusement Park. The gulch continues east and is often conveyed in concrete canals through the Golden area. Lena Gulch becomes forested as it crosses South Golden Road (into the project area) with typical tree species of riparian areas in eastern Colorado. After crossing two private parcels, Lena Gulch crosses into the Pleasant View Community Park and extends through the park for approximately ½ mile. Once the drainageway crosses back into private land, it again becomes channelized and adjacent land use encroaches as Lena Gulch continues through urban and suburban landscapes to its confluence with Clear Creek near the intersection of 44<sup>th</sup> Avenue and Kipling Street.

Common trees along this reach within Pleasant View Community Park include plains Cottonwood (*Populus deltoides*), Peachleaf Willow (*Salix amygdaloides*), Russian olive (*Elaeagnus angustifolia*), Green Ash (*Fraximus pennsylvanica*), and Siberian Elm (*Ulmus pumila*) (Photo 1). Shrubs are localized along the riparian zone and include Chokecherry (*Prumus virginiana*), Wild Plum (*Prumus americana*), and Red Hawthorn (*Crataegus erythropoda*). Understory vegetation consists mostly of grasses including Smooth Brome (*Bromus inermis*), Reed Canarygrass (*Phalaris arundinacea*), and Tall Fescue (*Schedonorus phoenix*) (Photo 2).

Only a few locations supported plant species commonly associated with orchids. These include Field Horsetail (Equiseum arvense) and Goldenrod (Solidago spp.).

Upland vegetation includes grasses and a dominance of weedy herbs. Dominant plants include Western Wheat Grass (*Pascopyrum smithii*), Crested Wheat Grass (*Agropyron cristation*), Smooth Brome, Cheatgrass (*Bromus tectorum*), and Fringe Sage (*Artemisia hidoviciana*).

## Hydrology and Landscape

Lena Gulch is identified as an intermittent stream on the USGS Morrison Quadrangle map. However, given the level of urbanization upstream of the project area, the stream likely flows most of the year if not all year round. Lena Gulch has likely been channelized. Channelization often creates instability and active crosion and deposition that are extensive (Anderson 1999b). Consequently, Lena Gulch has an incised channel (Photo 3) throughout most of this reach and overbank flooding appears limited to a few locations. The Pleasant View Metro District has created a side channel to the south of the natural drainage for wetland mitigation and flood storage (Photo 4). This area was excavated and lined with rip-rap and is now supporting robust Cattail (Typha latifolia) stands and diverse wetland vegetation among and upgradient from the cattails.

The project area was recently delineated for wetlands and a map was created and submitted to the U.S. Army Corps of Engineers for approval. This effort helped with site familiarity and an understanding of hydric soils in the area. This information is available upon request but soil characteristics match closely with an earlier rare plant survey (Anderson 1999a).

#### Site History and Management

The project area was formerly the Camp George West National Guard facility. The management of the site was for military training, administrative, and storage purposes. Remnant drainageways north of Lena Gulch support a patch (about ¼ acre) of Sandbar Willow (Salix exigua). These drainage ways were more evident before recent park development that reworked drainage across the site.

Land formerly part of Camp George West has been following decommissioning since the late 1950's, but was likely disturbed and reworked during operations of Camp Georg West and during decommissioning. Over the last 10 years, Pleasant View Metro District has begun re-engineering the drainage patterns across the site and constructing ball fields and a parking lot. A constructed wetland was built south of Lena Gulch to reorient the floodplain to the south.

# Survey Methods

In accordance with the Endangered Species Act, we conducted a survey for the federally listed Ute ladies' tresses Orchid (*Spiranthes diluvialis*- Orchid) and the Colorado Butterfly Plant (*Gaura neomexicana coloradensis*- CBP). This survey was conducted over two site visits, on August 5<sup>th</sup> and again on August 19<sup>th</sup>, 2009 when local populations of orchids (Wheat Ridge and Boulder, Colorado) were known to be blooming.

All potential wetland and wetland fringe areas within the limits of the EA secondary access study area (project area) were surveyed for the presence of orchids in accordance with the current interim guidelines published by the U.S. Fish and Wildlife Service (USFWS 1992). The project area was also surveyed for CBP. Tom Ryon, a prequalified *Spiranthes diluvialis* surveyor, led a team of 3 biologists conducting the surveys. Mr. Ryon's qualifications are available upon request.

Potential habitat areas at Lena Gulch, as identified by areas with common associated plant species for the orchid and a general knowledge of wetlands within the project area, were walked in a 5 to 10-foot grid pattern and the understory was carefully observed. Small drainages were walked along the length of both banks in potential habitat areas.

## Survey Results and Conclusion

This is the second time the Lena Gulch area has been surveyed for these two federally protected plants. Anderson (1999a) conducted a survey of the Camp George West site for a park development project for the Pleasant View Metropolitan District. This report is available from NREL upon request.

The results of the survey revealed no orchids or CBP within the project area along Lena Gulch and adjoining tributaries. All potential habitat areas exhibiting vegetative or hydrologic potential were surveyed. Although suitable hydrologic conditions exist along Lena Gulch and in the lower reaches of various tributaries, only two species commonly associated with the orchid occurred. Field Horsetail (*Equischum arvense*) and Goldenrod (*Solidago* spp.). Soils on this site generally do not appear to be conducive to the establishment of the orchid or CBP (Anderson 1999a). Recent soil observations during wetland delineations support Anderson's (1999a) findings.

After two surveys, confirming only marginal habitat conditions at the site, and considering the site history that *Spiranthes diluvialis* and *Gaura neomexicana coloradensis* do not exist within this project area, DOE concludes that these species are not present in or adjacent to Lena Gulch in the identified project area.

DOE requests that USFWS provide written concurrence to this habitat assessment, if USFWS agrees with the disqualification. For further questions or concerns regarding this assessment, please contact Tom Ryon (303-275-3252) or myself at 303-275-4723.

Sincerely.

Steve Blazek, NEPA Compliance Officer

Ce: Adam Mizstal – U.S. Fish and Wildlife Service
Pete Plage – U.S. Fish and Wildlife Service
Tom Anderson — Pacific Northwest Labs
Chris Carasona — DOE, Golden Field Office
John Eickhoff – EHS, NREL.
Tom Ryon – EHS, NREL

### References

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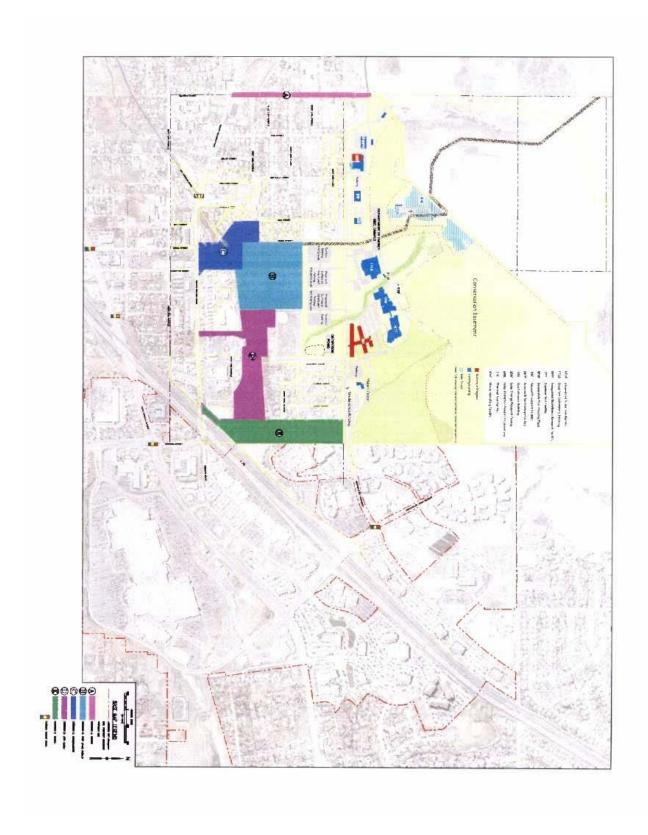




Photo 1. Riparian forest gallery line Lena Gulch.



Photo 2. Understory along Lena Gulch is primarily grasses.



Photo 3. Lena Gulch is incised for most of its length through the Pleasant View Park.



Photo 4. Constructed wetlands and flood storage channel adjacent to the south bank of Lena Gulch.



# Department of Energy

Golden Field Office 1617 Cole Boulevard Golden, Colorado 80401 3305

September 1, 2009

Ms. Ellen Mayo
U.S. Fish and Wildlife Service
Ecological Services
Western Colorado Field Office
764 Horizon Drive, Building B
Grand Junction, Colorado 81506-3946

COLORADO FIELD SUPERVISOR

CUESTO C. Linnor

Dear Ms. Mayo.

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Final Supplement-II to Final Site-Wide Environmental Assessment: National Renewable Energy Laboratory South Table Mountain Site	
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